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Hill Air Force Base, Utah

Draft

Investigation Summary Report

UST Site 870

(DERR Site EGSS, IRP

Site Code ST61)

Contract F42650-89-C-0038

February 1993

AQM01-01-0313

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JMM James M. Montgomery
Consulting Engineers Inc.

February 25, 1993



Ogden Air Logistics Center
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Project No.: 2208.0583

ATTN: Mr. Andrew Gemperline
Project Manager

PROJECT: Draft Investigation Summary Report
UST Site 870 (DERR Site EGSS, IRP Site Code 61
Contract No. F42650-89-C-0038, Delivery Order 5009

Dear Mr. Gemperline:

James M. Montgomery, Consulting Engineers, Inc. (Montgomery) has prepared the subject report to provide a summary of investigative activities conducted to date at UST Site 870. The following sections provide summary information regarding each component of the investigative activities conducted since November 1991. A brief discussion is also included which summarizes the known and unknown aspects of the site, and provides information on what future actions are planned for the site. Where appropriate, previously prepared reports are referenced. In addition, figures, tables, and appendices that are referenced in the text are provided at the end of this report.

INTRODUCTION

This report has been prepared following guidelines and requirements set forth in Task of Contract F42650-89-C-0038 issued by Hill Air Force Base (Hill AFB) to Montgomery. The objective of the report is to provide a comprehensive summary of information, data, and observations made to date at the site.

Site Location

Site 870, which is also referred to as Site EGSS by the Utah Division of Environmental response and Remediation (DERR) and as Site Code ST61 under the Air Force Installation Restoration Program (IRP), is located in the southwestern portion of Hill AFB, as shown in Figure 1. The underground storage tank (UST) at the site is within the Base tank farm which consists of nine aboveground storage tanks (ASTs) that are used to store JP-4 (jet fuel) and diesel for use in day to day operations at the Base. The site is bounded to the south by Sixth Street and the Patriot Hills Air Force personnel housing area. Warehouses, offices, and storage facilities are east and west of the site. To the north are the ASTs that comprise the Base fuel storage tank farm. A site map showing these features is provided as Figure 2.

Site History

As part of a Base-wide effort to upgrade and/or minimize the number of USTs at Hill AFB, a 1,000-gallon "slop tank" at the site was removed the tank had been used to store condensate and residual JP-4 generated by operations at a nearby filter stand. The 21 year-old UST had a 1,000-gallon capacity, was constructed of steel, and was removed from the site in May 1991 (Hill AFB designation 870.0). Following its removal, a new dual walled steel UST equipped with leak detection equipment, was installed in the same excavation. The new UST similarly served as a drain tank for condensate and residual JP-4 generated by the adjacent filter system. During the removal and closure process, the tank appeared to be in good condition, yet contaminated soils were observed in the excavation. Soil chemical analytical data for closure samples collected from native soils beneath each end of the old UST detected the presence of total petroleum hydrocarbons (TPH) at 1,600 and 2,900 milligrams/kilogram (mg/kg). The closure sample data are tabulated in Table 1, and copies of the laboratory analytical reports are provided in Appendix A. Attempts to excavate the contaminated soils were not made to avoid damaging an adjacent retaining wall immediately south of the excavation. The site has since been the subject of several investigations which are summarized in the following sections.

Previous Investigations

The site has been investigated several times since contamination was initially detected at the site during the tank closure. The investigations began in November 1991 when a site characterization investigation was conducted and reported in a Site Characterization Report (SCR) (Montgomery, 1991). At that time, three soil borings were drilled and sampled; a monitoring well and a soil vapor probe were installed in two of the soil borings. Evidence of hydrocarbon contamination was observed in the soils adjacent to the former UST, ground-water sampling results indicated that shallow ground water had been impacted but no light non-aqueous phase liquid (LNAPL) was observed (Montgomery, 1991). In March, 1992, LNAPL was measured in the monitoring well (MW-1) during routine monitoring checks by EMR personnel; the location of the well is shown in Figure 2. Several investigations have since been conducted to delineate the source and extent of LNAPL, as well as contaminated soil and ground water. Table 2 presents a chronological description of the investigative activities at the site to date. Reports regarding the findings of the various activities have been prepared and include:

- Site Characterization Report (Montgomery, 1991)
- Free Product Letter Report (Montgomery, 1992a)
- Pumping Tests and Product Thickness Test Letter Report (Montgomery, 1992b)
- Remedial Options Letter Report, (Montgomery, 1993).

Other significant activities at the site have included a soil gas survey, the installation of an LNAPL recovery system, line tightness testing, tracer tests, and cone penetrometer testing (CPT) and drilling. The CPT and drilling activities have delineated the extent of the LNAPL and contaminated ground water, as shown in Figure 3.

Current Activities

Current activities at the site include active and passive LNAPL removal, weekly monitoring of water and LNAPL levels, and a vapor exposure assessment (VEA). Active LNAPL recovery has been conducted at the site since the installation of the recovery system in June 1992, approximately 500 gallons of LNAPL have been recovered. Passive LNAPL recovery using absorbent pads enclosed in a stainless steel perforated bailer is also being used in selected wells to maximize

LNAPL recovery. Water and LNAPL measurements are measured weekly to provide information regarding varying LNAPL thicknesses and fluctuations in the water table. A VEA for the Patriot Hills housing area is being conducted to determine whether the volatilization of toxic constituents of the LNAPL underlying the housing area constitutes a pathway for exposure to Patriot Hill residents. The project is in the planning stages and actual field vapor measurements using flux chambers are expected to begin in early March 1993.

DATA SUMMARY

Soils

A summary of soil analytical data generated during the UST Site 870 investigations is provided in Table 3, copies of the laboratory analytical reports are provided in Appendix B. The presence of LNAPL and seasonal water table fluctuations have resulted in a broad smeared zone of soil contamination above the water table. These fluctuations have created a zone of highly contaminated soils that is confined to a capillary fringe zone that ranges from 3 to 7 feet above the water table. This smeared zone of contaminated soils has been encountered above the entire lateral extent of the LNAPL (Figure 2). Headspace soil screening data from the nine monitoring wells on the site and the three located in the Patriot Hills housing area indicate that the contamination above the water table is greatest near Building 870 and well MW-3 (Figure 2). The headspace readings are provided on the boring logs in Appendix C. The soils encountered during the drilling of MW-3 were contaminated beginning at a depth of 5 feet and contaminated soils extended to the water table approximately 25 feet. Based on the headspace and laboratory analytical data the thickness of contaminated soils above the water table thins to the southwest and down gradient of the site.

Geotechnical samples were collected at the site during previous investigations and tested for permeability, Unified Soils Classification System (USCS), Atterberg Limits, and moisture. The results of the four samples are tabulated in Table 4, copies of the geotechnical reports are provided in Appendix D.

Ground Water

Ground-water analytical data collected from the site have been tabulated in Table 5; copies of the laboratory reports can be found in Appendix E. Through various investigations, the extent of LNAPL and ground-water contaminated with dissolved benzene, toluene, ethylbenzene, and xylenes (BTEX) contaminants has been identified as approximately 1,300 feet long and up to 600 feet wide beneath Patriot Hills housing area (Figure 1-2). A total of twelve monitoring wells have been installed. Three of the wells are offsite in the Patriot Hills housing while nine were onsite within the limits of the tank farm; well completion information is summarized in Table 6. A considerable amount of the ground-water data was generated during the CPT investigation in August 1992. During this investigation, CPT profiles were compiled from 39 locations and piezometers were installed. The piezometers were sampled and analyzed using a laboratory-grade portable gas chromatograph; a CPT summary report is included as Appendix F. This investigative method proved to be a useful screening method for determining the extent of contamination. Some of the samples collected from the site contained halogenated compounds, however, these compounds were only tentatively identified by matching library elution times with peaks on the chromatogram. Additionally, the gas chromatograph was not calibrated for these compounds so there is uncertainty regarding whether the compounds were properly quantified and identified. Other ground-water samples (SGS-1, CPT-7, and MW-5) collected at the site contained halogenated compounds just at or above the detection limits suggesting that these compounds may be present at very low concentrations (Table 5).

During a recent CPT investigation conducted in November 1992, an attempt was made to assess the vertical extent of ground-water contamination. A push-in sampler was advanced to a specified depth using the hydraulics and weight of the CPT rig. When the sampler was at the sample interval, the cone rods were pulled back opening the sampler screened interval and a small stainless steel bailer was then used to collect a ground-water sample through the cone rods. Samples were collected at two locations, one adjacent to MW-4 and the other by MW-3. Three ground-water samples were collected from each location at 10-foot intervals beginning at 10 feet beneath the water table. Based on the results of the sampling (Table 5) it suggests that dissolved contaminants may extend to a depth of at least 69 feet bgs.



SITE HYDROGEOLOGY

Investigations at the site have encountered sediments typical of a deltaic depositional environment. Soils are comprised of silty sands and poorly sorted sands with interbedded silts and clays. Two cross-sections of the site have been prepared, Section A-A' is oriented northeast-southwest down the length of the LNAPL and contaminated ground water, while Section B-B' is oriented northwest-southeast, as shown in Figures 4 and 5. The cross-sections provide a good conceptual understanding of the shallow geology beneath the site. Sediment types that were logged in borehole CPT-40, located at the northeast end of the cross-section, extending to MW-12 to the southwest (Figure 4) is primarily composed of silty sands until a depth of approximately 25 feet bgs; below this depth sandy clays to silts with interbedded silty sands are the primary sediment type. The LNAPL and dissolved contaminants in ground water appear to have migrated into the interbedded silty sands. Based on physical soil sample observations and CPT profiles at the site, the silty sand layers have a maximum thickness of approximately 1/2-inch resulting in very low conductivities and transmissivities.

Between MW-12 and the end of the cross-section at CPT-26 (Figure 4), the stratigraphy is comprised of silty sands with interbedded or alternating layers of poorly sorted sand, however, at approximately 25 feet silts and clays become more prevalent and are interbedded with silty sands and poorly sorted sands. A fairly thick (12 to 16 feet) and continuous body of poorly sorted sand was observed beneath the middle of the NAPL area beginning near the location of MW-12 and extending to CPT-26 where its thickness decreases considerably. The sand is believed to be an old deltaic stream channel. The channel sand in the cross-section is bound beneath by silts and clays interbedded with silty sand; however, in the cross-sections, LNAPL and ground water appear to have migrated through both the channel sand and the surrounding silt and clay with interbedded silty sand or poorly sorted sands.

In cross-section B-B', the stratigraphy has been interpreted to be composed of silty sands to poorly sorted sands near the surface grading downward into silts and clays. This cross-section also shows that the ground water does not appear to be limited to the area of the channel sand.

The extent of the LNAPL and contaminated ground water is shown in Figure 2. The LNAPL thickness throughout the area is thickest in MW-3 adjacent the pump house and generally thins to the southwest beneath the Patriot Hills housing area. However, the LNAPL thicknesses and ground-water levels appear to fluctuate based on recent field measurements. LNAPL thicknesses and water level measurements are being collected on a weekly basis which should provide a better understanding of LNAPL thicknesses both on site and in the Patriot Hills housing area.

LNAPL RECOVERY

An active LNAPL recovery system was installed at the site in June 1992 in MW-3 adjacent to Building 870 (see Figure 2). Over the past eight months, the active recovery system and the passive recovery systems have removed approximately 500 gallons of LNAPL from the subsurface. More recently, a passive LNAPL recovery system (Soakease System) was installed in October 1992 in 2

of the wells at the site. The passive system uses an absorbent sock which is placed in a stainless steel perforated bailer and lowered into the well across the water table where LNAPL is wicked into the absorbent material. The bailer is removed and wrung out on a weekly basis to remove the LNAPL from the absorbent material and the process is repeated. All LNAPL has been containerized in 55-gallon drums at the site and disposed of by Hill AFB.

AQUIFER TESTING

Pumping Tests

Pumping tests were performed at the site to determine the maximum sustainable ground-water pumping rate as well as the feasibility of installing a ground water/LNAPL recovery and treatment system (Montgomery, 1992b). Results of the tests indicated that the combined rate from five on-site wells is not likely to exceed two gallons per minute (gpm); the most productive well (MW-3) was able to sustain a flow of 0.65 to 0.75 gpm. The shallow aquifer beneath the site typically has very low conductivities and transmissivities, and drawdown is localized. Changes in product thickness during pumping were monitored at three of the pumping wells, but were only significant in MW-3. The lack of observable change in product thickness may be attributed to the small product thickness at the time of testing. A more detailed discussion of the results of the field tests are provided in Pumping Tests and Product Thickness Test Letter Report (Montgomery 1992b).

Slug Testing

As part of the November 1991 investigation, slug tests were performed at the site to determine the hydraulic conductivity for the aquifer material at the site. Two tests were performed in MW-1, and the hydraulic conductivity was calculated using the Bouwer (1978) method at 1.50×10^{-4} and 1.80×10^{-4} cm/s. These values are indicative of silty sands and fine sands according to Freeze and Cherry (1979). The Site Characterization Report (Montgomery, 1991) provides a discussion of the slug tests and resultant hydraulic conductivities.


DISCUSSION

As a result of the investigations, the extent of the LNAPL and the contaminated ground water is known to extend southwest of the pump house at Site 870 into the Patriot Hill housing area; it is roughly 1,300 feet long and up to 600 feet wide (Figure 2). The LNAPL is thickest in the area of MW-3, believed to be near the source area at the west end of the pump house. The LNAPL thickness generally decreases down gradient to the southwest beneath the Patriot Hill housing area. The LNAPL that flows into MW-3 is actively pumped using an LNAPL recovery system, typically the product thickness in the well is maintained at 0.02 feet or less. The lithology of the site as determined by CPT and drilling has been observed to be comprised of silty sands interbedded with silts and clays. A stream channel composed of poorly sorted sand has been interpreted to be superimposed on top of less permeable clayey silts and silty clays interbedded with thin silty sand layers. It appears that the lateral and vertical distribution of LNAPL is influenced by the stream channel and the less permeable sediments beneath the sand. The identification of the channel sand has, in part, defined the area and shape of the LNAPL and contaminated ground water which is oriented northeast-southwest across the site.

The LNAPL has a gas chromatograph signature typical of fresh to weathered JP-4 and/or diesel fuel. The source of the LNAPL has not been identified nor has it been determined if it is from active leaks or if it is from past spills or leaks. Further investigations to identify the sources are planned and will involve additional line tightness testing, tracer studies, and hand augering along utility trenches. In addition to this, the VEA study will be conducted in the Patriot Hills

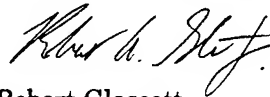
February 25, 1993

housing area to determine if there are any imminent health risks to the residents. Containment and recovery treatability studies are planned which will involve driving sheet piling into the ground to control the migration of LNAPL off site, different LNAPL recovery and insitu groundwater treatment approaches will be considered. The studies will also involve air sparging and soil vapor extraction on a small scale to determine if these are viable remediate alternatives. If the results of the treatability studies are promising, a full scale design will be pursued.

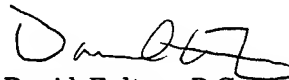
 We welcome your comments. Please do not hesitate to call us if you have any questions or comments.

Very truly yours,

JAMES M. MONTGOMERY
Consulting Engineers, Inc.



Robert Glascott
Hydrogeologist




David Fulton, P.G.
Project Manager

/pw
Enclosures

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Freeze R.A., and Cherry, J.A., 1979. Groundwater: Prentice-Hall, Inc., Englewood Cliffs, New Jersey, p. 29.

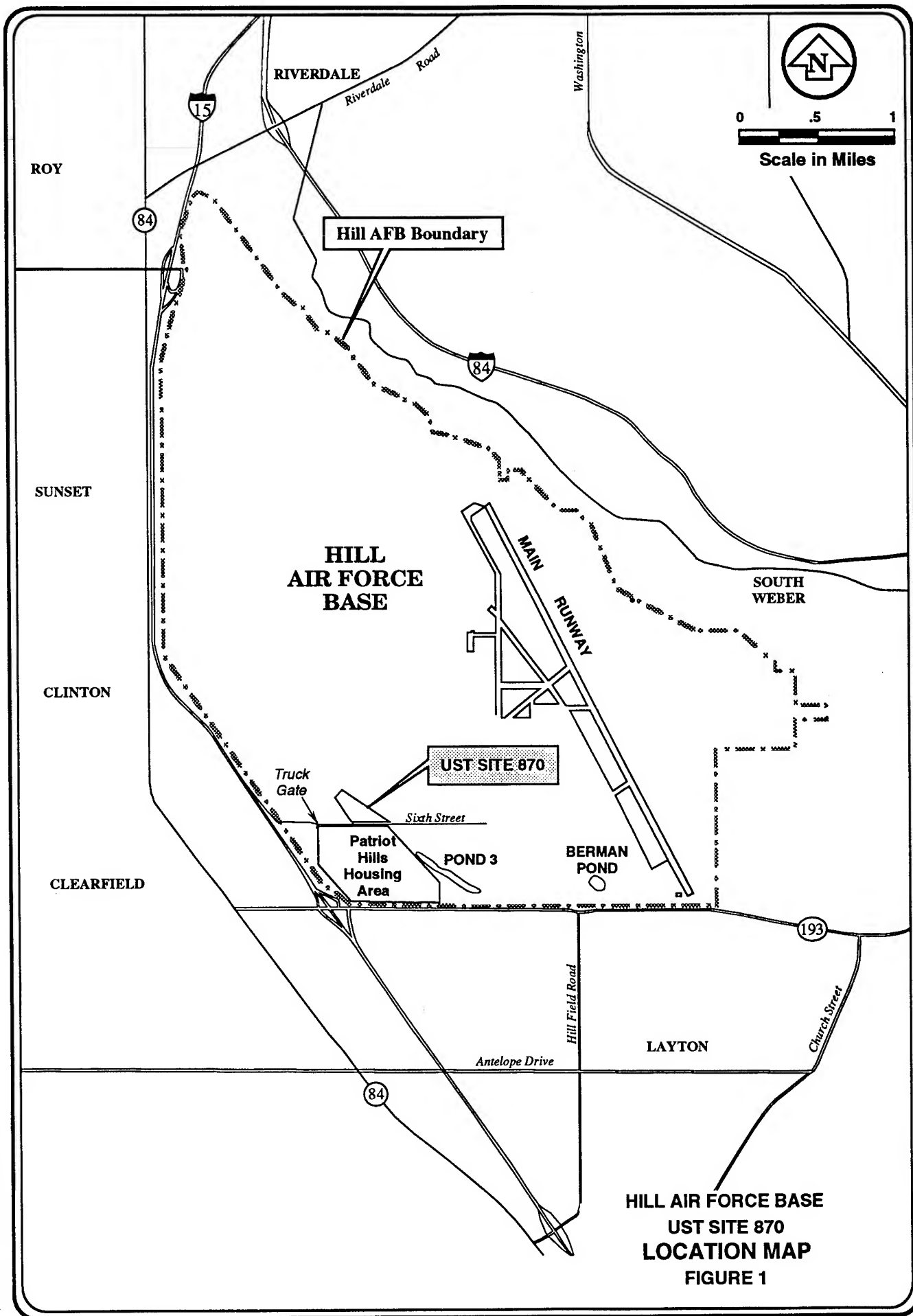
 James M. Montgomery Consulting Engineers, Inc., (Montgomery), 1991. External Draft Site Characteriztion Report for UST Site 870.0 (AGSS), December 1991.

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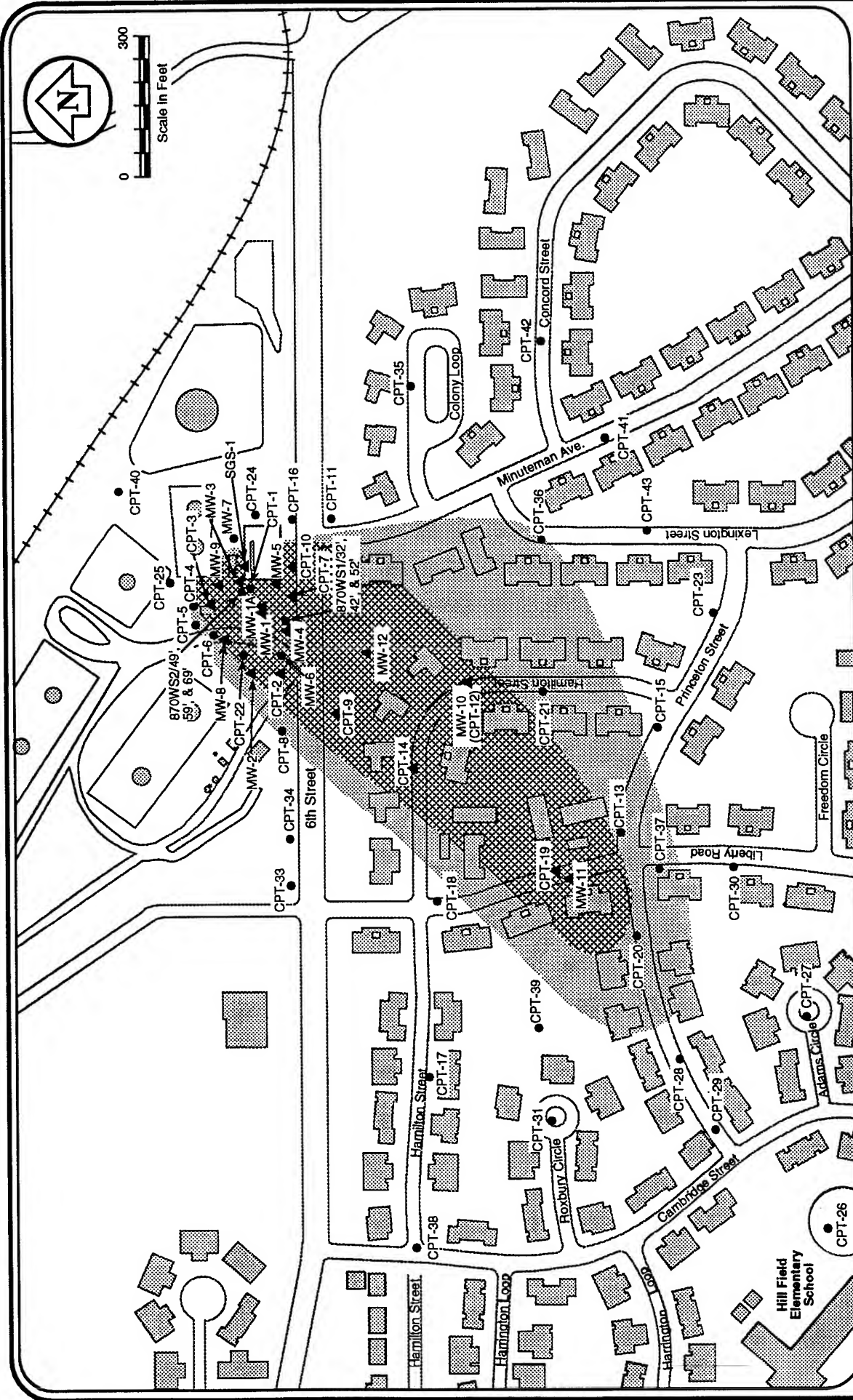
James M. Montgomery Consulting Engineers, Inc., (Montgomery), 1992b. Pumping Tests and Product Thickness Test Letter Report UST Site 870 (EGSS) (IRP Site Code ST61), November 1992.

James M. Montgomery Consulting Engineers, Inc., (Montgomery), 1993. Remedial Options Letter Report, January 1993.

FIGURES



HILL AIR FORCE BASE
UST SITE 870
LOCATION MAP
FIGURE 1



EXPLANATION

- CPT-28 • Cone penetrometer test
- CPT-19 ▲ Free phase JP-4 detected
- MW-12 • Monitoring well location
- Extent of JP-4
- Railroad

HILL AIR FORCE BASE
UST SITE 870
SITE MAP
FIGURE 2

SW
A

4700

4690

4680

4670

4660

4650

4640

4630

4620

4610

4600

4590

4580

4570

4560

Elevation in Feet (NGVD)

CPT-26

CPT-25

CPT-28

CPT-20
Projected
60' SE

CPT-13

MW-11

CPT-19

CPT-12/MW-10
Projected 150' NW

CPT-14
Projected
60' SE

CPT-9
Projected
80' SE

MW-12
Projected
60' NW

Sixth
Street

MW-6
Projected
60' NW

MW-4

MW-1

MW-3

MW-7

NE
A'

EXPLANATION

(SP) Poorly sorted sands

(SM) Silty sands (SC) Clayey
sands, and mixtures of sand, silty
sand and clayey sand

(ML) Silt (CL) Silty clay

(SM) Silty sands

Water level

Monitoring well and
screened interval

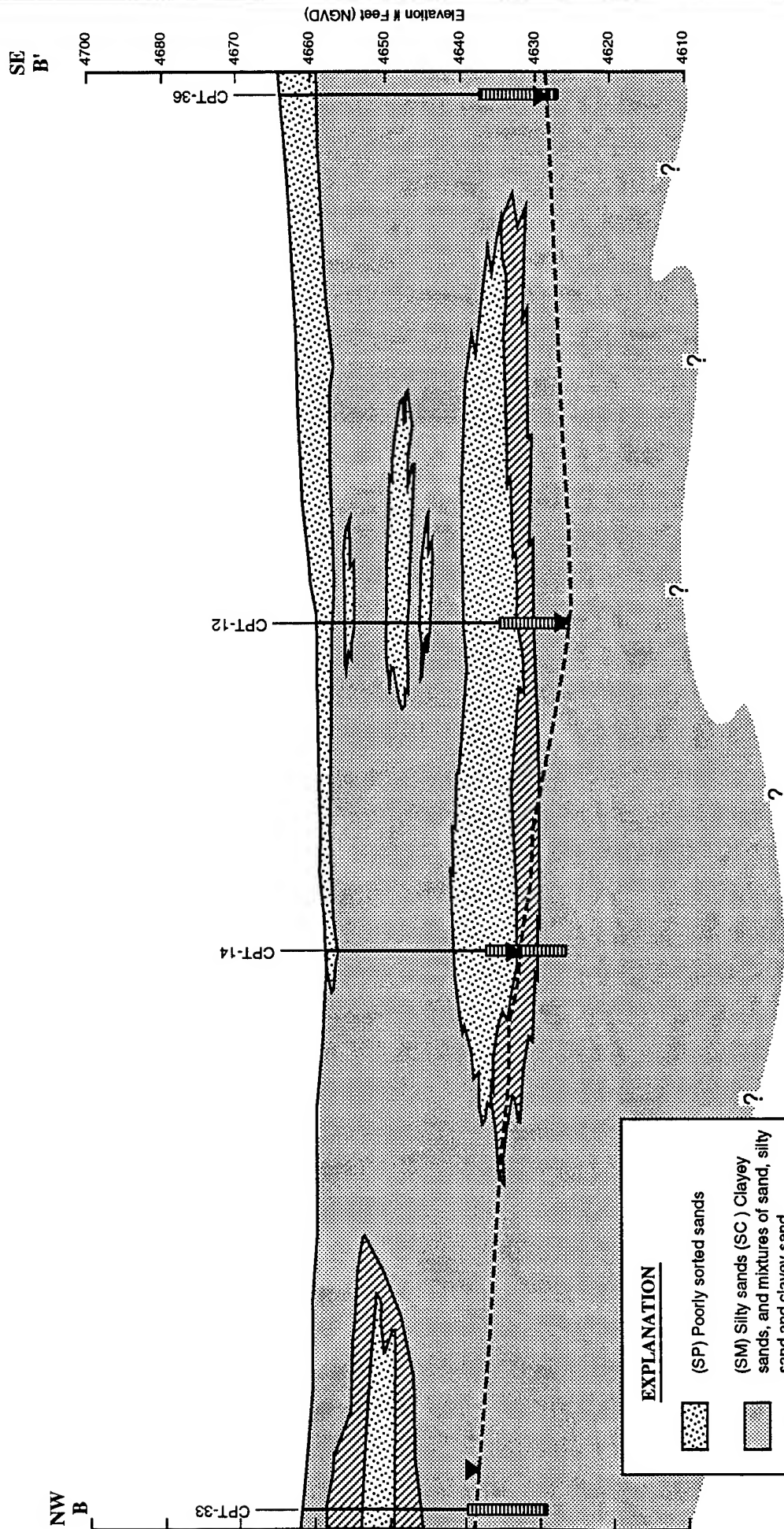
0 50 100
Scale in Feet

Vertical: 1" = 20 feet

Vertical Exaggeration = 5x

HILL AIR FORCE BASE
UST SITE 870

CROSS SECTION A-A'
FIGURE 4



EXPLANATION	
	(SP) Poorly sorted sands
	(SM) Silty sands (SC) Clayey sands, and mixtures of sand, silty sand and clayey sand
	(ML) Silt (CL) Silty clay
	Water level
	Monitoring well and screened interval

HILL AIR FORCE BASE
NORTHEAST-SOUTHEAST
CROSS SECTION B-B'

FIGURE 5

Scale in Feet
0 50 100
Vertical: 1" = 20 feet
Vertical Exaggeration = 5x

TABLES

TABLE 1
CLOSURE SOIL ANALYTICAL DATA

Analyte	Sample I.D.:			
	SS# 870T-1 (Southwest End)	SS# 870T-2 (Northeast End)	SS# 870P-1 (Southeast End)	
Total petroleum hydrocarbons (TPH)(mg/kg)	2,900	1,600	<2.0	

mg/kg Milligrams/kilogram

All soil samples were analyzed according to EPA SW-846 Method 8015 Modified.

TABLE 2

SUMMARY OF INVESTIGATIVE ACTIVITIES

Field Activity	Date(s)	Safety Level	Regulatory Notification(s)/ Permitting Requirement(s)	Result
Site Characterization (JMM)	11/6/91-11/8/91	D	Division of Water Rights notified of intent to install monitoring well. Utility clearance by Base Red Stakes.	Soil and ground-water contamination identified near 1,000 gallon UST and piping draining filters to UST. Three borings, one completed as vapor probe, one completed as 4-inch monitoring well (MW-1). Site Characterization Report submitted to DERR 12/91.
Weekly Water Level Measurements (EMR/JMM)	3/25/92	D	DERR (Robin Jenkins) and DWQ (Larry Mize) notified of free-product in MW-1.	Product detected in MW-1 (Figure 2). Bail-down test performed. Daily bailing conducted to remove product. Removed approximately 1 gallon on 3/25/92 and approximately 1/2 gallon each day.
Soil Gas Survey (JMM/Target)	3/31/92-4/3/92	D	None	Optimum probe depth determined to be 15 feet below ground surface. Survey shows plume to be primarily on site. Highest values near Building 870. Attempts at sampling ground water through soil gas probes unsuccessful. (Target Environmental Services, Inc., Soil Gas Survey, UST Site 870, April 1992, p. 9.)
Site Investigation (JMM)	5/20/92-5/26/92	D	Division of Water Rights notified of intent to install monitoring wells. DERR notified of product found in additional wells.	Three borings completed as wells (MW-2, 3, 4) as depicted in Figure 2. Soil contamination observed in 2 of 3 borings. Free product observed in MW-3 boring and suspected in MW-4. Bailing initiated for wells MW-3 and MW-4.
Product Recovery Pump Installation and Operation (JMM/EMR)	6/12/92	D	None	Installed QED-specific gravity product skimmer pump in MW-3. Operated constantly. Monitored and serviced daily by JMM/EMR. All equipment is explosion-proof, meeting all Base fire codes.
Site Investigation (JMM)	6/16/92-6/18/92	D	Division of Water Rights notified of intent to install monitoring wells. Utility clearance by Base Red Stakes.	Three borings completed as wells (MW-5, 6, and 8) as depicted in Figure 2. Soil contamination observed in all of the borings. Free product present in MW-5 and MW-8. Bailing initiated for MW-5 and MW-8.
Product Pump Installation and Recovery Test (JMM)	6/30/92	D	None	Installed a CEE Selective Oil Skimmer (SOS) pump in MW-1 for recovery and thickness testing. MW-1 was pumped until only a sheen remained, the pump was removed and product level monitored over time. After 95 minutes there was only 0.02 of product in the well. Based on the test, the true thickness of product is believed to be 0.02 feet.

TABLE 2

SUMMARY OF INVESTIGATIVE ACTIVITIES
(CONTINUED)

Field Activity	Date(s)	Safety Level	Regulatory Notification(s)/Permitting Requirement(s)	Result
Site Investigation (JMM/HAFB)	8/3/92-8/6/92	D	Base Fire Department notified and present at site.	Excavated some of the product lines associated with the pump-house. No leaks were found. Base Bioenvironmental Engineering conducted site air monitoring. Hand augered in 12 locations around the pumphouse at the site. Eleven of 12 locations contained soil contamination, no ancillary pipe leak(s) was detected. Installed soil vapor probes in all holes to monitor soil gas.
Site Investigation (JMM/Terra Technologies)	8/6/92-8/14/92	D	Utility clearance by Base Red Stakes.	Cone penetrometer testing performed at 37 locations, involving the installation and sampling of temporary well points. Ground-water samples were analyzed using a laboratory-grade gas chromatogram with a PID. Determined the extent of dissolved and free product in ground water.
Site Investigation (JMM/Tracer Research Corp.)	8/20/92-8/21/92	D	None	Tracer tested ancillary piping associated with the pumphouse. No leaks were found in lines that were checked.
Residential Air Sampling (HAFB)	8/25/92-8/27/92	D	None	Seven houses were selected within the plume in Patriot Hills for air sampling. Samples were collected from the basements. Two air samples were taken in backyards one within the plume and one background location.
Site Investigation (JMM)	9/2/92-9/10/92	D	Division of Water Rights notified of intent to install monitoring wells. Utility clearance by Base Red Stakes.	Three borings were completed as wells (MW-10, 11, and 12) as depicted in Figure 2. Soil contamination observed in all three borings above the water table.
Fuels Analysis (HAFB)	9/3/92	D	None	Monitoring wells MW-3, 4, and TWP-1 or MW-8 (Figure 2) were sampled to determine the composition of the product. The samples were analyzed at Tyndall AFB, FL. A copy of the analytical data can be found in Appendix D.
Site Investigation (JMM)	9/15/92-9/18/92	D	None	Performed pump tests on five wells to measure sustainable pumping rates. Maximum pump rate from all five wells combined is less than 2.25 gallons per minute.
Site Investigation (JMM)	9/18/92-10/1/92	D	None	Installation of three additional SOS pump systems in monitoring wells MW-1, 4, and 8 as depicted in Figure 2.

TABLE 2
SUMMARY OF INVESTIGATIVE ACTIVITIES
(CONTINUED)

Field Activity	Date(s)	Safety Level	Regulatory Notification(s)/ Permitting Requirement(s)	Result
Site Investigation (JMM)	10/23/92	D	None	Installed a passive recovery system in monitoring well MW-4 for product removal. Information on this recovery method is provided in Appendix E.
Site Investigation (JMM/Fugro Geosciences)	11/22/92-11/24/92	D	None	Installed four piezometers; one onsite 870 and three in Patriot Hills. Collected three groundwater samples in two locations onsite to vertically profile the shallow aquifer.

TABLE 3

SOIL ANALYTICAL RESULTS

Analyte	Soil Boring and Sample Depth						
	MW-1 (16'-17')	MW-1 (18'-19')	SB870A-02 (15'-16')	SB870A-02 (17'-18')	SB870A-03 (11'-12')	SB870A-03 (19'-20') (Duplicate) of 19'-20')	Trip Blank (Water) 11/7/92 (µg/L)
BTEX (µg/kg)							
Benzene	150	564	43.2	13.0	9,400	22,200	<1.0
Toluene	129	145	51.3	60.2	115,000	187,000	<1.0
Ethylbenzene	57.0	341	52.2	57.7	66,700	83,100	<1.0
Xylenes	318	2,249	457.3	509	634,000	744,000	<1.0
TPH (mg/kg)	<10.0	98.3	23.2	37.0	2,790	15,100	<1.0
Total Organic Carbon (mg/kg)	--	--	--	--	--	--	--
Moisture (%)	21.9	19.4	18.9	24.2	7.3	14.0	--

µg/kg Micrograms/kilogram
 mg/kg Milligrams/kilogram
 µg/L Micrograms/liter
 -- Not analyzed

Soil Samples were analyzed according to EPA SW-846 Methods 8020 and 8015 Modified.

TABLE 3

SOIL ANALYTICAL RESULTS
(CONTINUED)

Analyte	Soil Boring and Sample Depth								
	MW-5 (15.5'-16')	MW-6 (21'-21.5')	Trip Blank (Water) 6/17/92 (µg/L)	MW-8 (11'-11.5')	Trip Blank (Water) 6/18/92 (µg/L)	MW-9 (17'-17.5') Abandoned	MW-1A (17'-17.5') Abandoned	Trip Blank (Water) 6/29/92	MW-1A (59.5'-60') Abandoned
BTEX&N (µg/g)									
Benzene	2.0	0.009	<1.0	<0.005	<1.0	0.10	10	<1.0	<0.009
Toluene	0.11	<0.005	<1.0	0.031	1.4	0.10	23	<1.0	<0.005
Ethylbenzene	0.26	<0.005	<1.0	0.12	<1.0	0.18	16	<1.0	<0.005
Xylenes	2.8	<0.005	3.5	0.92	5.5	5.4	74	2.9	<0.01
Naphthelene	1.4	0.05	<5.0	4.4	<5.0	2.9	6.6	<5	<0.01
TPH (mg/g)	0.02	<0.01	--	0.11	--	0.36	1.5	--	<0.01

µg/g Micrograms/gram

mg/g Milligrams/gram

µg/L Micrograms/liter

-- Not analyzed

Soil Samples were analyzed according to EPA SW-846 Methods 8020 and 8015 Modified.

TABLE 4
GEOTECHNICAL RESULTS

Geotechnical Characteristic	Sample ID and Sample Depth			
	MW-1 (25.5'-26')	SB-3 (15.5'-16')	MW-5 (31'-31.5')	MW-6 (30.5'-31')
Moisture (%)	23.9	NA	29.1	23.9
USC Classification	CL	NA	CL	ML
Atterburg Limits	Liquid Limit=28 Plastic Index=7	NA	Liquid Limit=32 Plastic Index=10	Non-plastic
Permeability (cm/s)	1.29×10^{-7}	2.31×10^{-7}	1.78×10^{-7}	2.03×10^{-6}

NA Not analyzed

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte	MW870A-01	MW-570 (Duplicate)	CPT-42	CPT-43
BTEX (µg/L)				
Benzene	305	222	<1.0	<1.0
Toluene	690	660	<1.0	<1.0
Ethylbenzene	132	102	<1.0	<1.0
Xylenes	2,303	2,396	<1.0	<1.0
TPH (mg/L)	11.9	7.5	<1.0	<1.0

µg/L Micrograms/liter
mg/L Milligrams/liter
-- Not analyzed

Water samples were analyzed according to EPA SW-846 Methods 8020/602 and 8015 Modified.

TABLE 5

GROUNDWATER ANALYTICAL RESULTS

Analyte Volatiles - Priority Pollutants	MW-27 Blind Dup of MW-5			MW-10 MW-11 MW-12			Trip Blank 10/1/92		CPT-14 (µg/L)
	CPT-7 (µg/L)	MW-5 (µg/L)	MW-27 (µg/L)	MW-10 (µg/L)	MW-11 (µg/L)	MW-12 (µg/L)	10/1/92 (µg/L)	CPT-10 (µg/L)	
Chloromethane	*71	4J	<100	<10	<10	<10	<10	<10	<500,000
Vinyl Chloride	<500	<100	<100	<10	<10	<10	<10	<10	<500,000
Bromomethane	<500	<100	<100	<10	<10	<10	<10	<10	<500,000
Chloroethane	<500	<100	<100	<10	<10	<10	<10	<10	<500,000
Trichlorofluoromethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Acrolein	<5,000	<1,000	<1,000	<100	<100	<100	<100	<100	<1,000,000
1,1-Dichloroethene	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Methylene Chloride	<250	<50	<50	<5	<5	11	<5	12	<250,000
Acrylonitrile	<5,000	<1,000	<1,000	<100	<100	<100	<100	<100	<1,000,000
1,1-Dichloroethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
1,2-Dichloroethene (total)	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Chloroform	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
1,1,1-Trichloroethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Carbon Tetrachloride	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Benzene	680	74	76	<5	26	10	<5	<5	<250,000
1,2-Dichloroethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Trichloroethene	<250	<50	8	<5	<5	<5	<5	<5	<250,000
1,2-Dichloropropane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Bromodichloromethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
2-Chloroethylvinyl ether	<500	<100	<100	<10	<10	<10	<10	<10	<500,000
cis-1,3-Dichloropropene	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Toluene	*34J	<50	<50	17	33	<5	<5	11	<250,000
trans-1,3-Dichloropropene	<250	<50	<50	<5	<5	<5	<5	<5	<250,000

TABLE 5
GROUNDWATER ANALYTICAL RESULTS
(CONTINUED)

Analyte Volatiles - Priority Pollutants	CPT-7 (µg/L)	MW-5 (µg/L)	MW-27 Blind Dup of MW-5 (µg/L)	MW-10 (µg/L)	MW-11 (µg/L)	MW-12 (µg/L)	Trip Blank 10/1/92 (µg/L)	CPT-10 (µg/L)	CPT-14 (µg/L)
1,1,2-Trichloroethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Tetrachloroethene	* <50J	2J	3J	<5	<5	<5	<5	<5	<250,000
Dibromochloromethane	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Chlorobenzene	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
Ethylbenzene	1,400	160	150	<5	21	29	<5	16	1,400,000
Xylenes (Total)	5,700	900	890	110	180	300	<5	160	13,000,000
Bromoform	<250	<50	<50	<5	<5	<5	<5	<5	<250,000
1,1,2,2-Tetrachloroethane	* <50J	<50	2J	<5	<5	<5	<5	<5	<250,000

µg/L Micrograms/liter

J Estimated value

* In an attempt to lower detection limits, a 1 ml aliquot was analyzed outside the holding time.

Water samples were analyzed according to EPA SW-846 Method 8240.

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte Volatiles - Organic Compounds	MW-40 Blind Dup of										CPT-40 (µg/L)	Trip Blank 11/23/93 (µg/L)
	870-WS-1/32'	870-WS-1/42'	870-WS-1/92'	870-WS-2/49'	870-WS-2/49'	870-WS-2/59'	870-WS-2/69'	870-WS-2/69'	870-WS-2/69'	870-WS-2/69'		
Chloromethane	<2.0	<20.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	<2.0	<20.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Bromomethane	<2.0	<20.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloroethane	<2.0	<20.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Fluorotrichloromethane	<2.0	<20.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,1-Dichloroethene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloromethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.7
trans-1,2-Dichloroethene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	17.4	30.5	27.0	8.4	6.5	24.0	43.5	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene (TCE)	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	1.8	113	59.3	13.8	7.8	68.0	71.7	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene (PCE)	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorodibromomethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	56.4	21.6	4.5	1.7	50.7	38.2	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<2.0	<20.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
m,p-Xylene	4.9	369	107	30.2	12.2	294	258	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene/Styrene*	1.3	103	36.4	9.4	3.4	93.7	63.6	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 5

GROUNDWATER ANALYTICAL RESULTS
(CONTINUED)

Analyte Volatiles - Organic Compounds	870-WS-1/32'	870-WS-1/42'	870-WS-1/92'	870-WS-2/49'	MW-40 Blind Dup of		870-WS-2/59'	870-WS-2/69'	CPT-40	Trip Blank
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	870-WS-2/49'	(µg/L)	(µg/L)	(µg/L)	(µg/L)	11/23/93 (µg/L)
1,1,2,2-Tetrachloroethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

µg/L Micrograms/liter

Water samples were analyzed according to EPA Method 601/602.

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte Volatiles - Organic Compounds	CPT-7 (µg/L)	SGS-1 (µg/L)
1,1,2-Trichloroethane (1,1,2-T)	<500	<5
1,1-Dichloroethylene (1,1DCE)	<500	<5
1,1-Dichloroethane	<500	<5
1,2-Dichlorobenzene	<500	<5
1,2-Dichloroethane	<500	<5
1,2-Dichloropropane	<500	<5
1,3-Dichlorobenzene	<500	<5
1,4-Dichlorobenzene (p-DCB)	<500	<5
2-Butanone (MEK)	<10,000	<100
2-Chloroethylvinylether	<1,000	<10
2-Hexanone	<10,000	<100
4-Methyl-2-Pentanone (MIBK)	<1,000	<10
Acetone	<1,000	<100
Acrolein	<1,000	<10
Acrylonitrile	<500	<10
Benzene	<500	7.7
cis-1,2-Dichloroethene	<500	<5
Chlorobenzene	<500	<5
cis-1,3-Dichloropropene	<500	<5
Bromoform	<500	<5
Chloroform (Trichloromethane)	<500	<5
Chloroethane	<1,000	<10
Carbon Disulfide	<500	<5
Carbon Tetrachloride	<500	<5
Dibromochloromethane	<500	<5
Dichlorobromomethane	<500	<5
Ethyl benzene	1,800	5.5
Methyl Bromide	<1,000	<10
Methyl Chloride	<1,000	<10
Methylene Chloride	<3,000	<30

TABLE 5
GROUNDWATER ANALYTICAL RESULTS
(CONTINUED)

Analyte Volatiles - Organic Compounds	CPT-7 (µg/L)	SGS-1 (µg/L)
m,p-Xylenes	4,600	8.8
o-Xylene	1,900	19
1,1,2,2-Tetrachloroethane	<500	<5
Tetrachloroethylene (PCE)	<500	18
Styrene	<500	<5
trans-1,2-Dichloroethene	<500	<5
1,1,1-Trichloroethane	<500	<5
Trichloroethylene (TCE)	<500	<5
Trichlorofluoromethane	<1,000	<10
trans-1,3-Dichloropropene	<500	<5
Tetrahydrofuran	<10,000	<100
Toluene	<500	<5
Vinyl Chloride (VC)	<1,000	<10
Vinyl Acetate	<10,000	<100

µg/L Micrograms/liter

All samples were analyzed according to EPA SW-846 Method 8240.

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte Volatile Organic Compounds (TCL)	MW-6 (µg/L)	MW-7 (µg/L)	MW-27 Blind Dup of MW-7 (µg/L)
Chloromethane	<50	<10	<10
Vinyl Chloride	<50	<10	<10
Bromomethane	<50	<10	<10
Chloroethane	<50	<10	<10
1,1-Dichloroethene	<25	<5	<5
Acetone	<100	<20	<20
Carbon Disulfide	<25	<5	<5
Methylene Chloride	<25	<5	<5
1,1-Dichloroethane	<25	<5	<5
Vinyl Acetate	<25	<5	<5
2-Butanone	<100	<20	<20
1,2-Dichloroethene (total)	<25	<5	<5
Chloroform	<25	<5	<5
1,1,1-Trichloroethane	<25	<5	<5
Carbon Tetrachloride	<25	<5	<5
Benzene	<25	<5	<5
1,2-Dichloroethane	<25	<5	<5
Trichloroethene	<25	<5	<5
1,2-Dichloropropane	<25	<5	<5
Bromodichloromethane	<25	<5	<5
cis-1,3-Dichloropropene	<25	<5	<5
4-Methyl-2-Pentanone	<25	<10	<10
Toluene	<25	<5	<5
trans-1,3-Dichloropropene	<25	<5	<5
1,1,2-Trichloroethane	<25	<5	<5
Tetrachloroethene	<25	<5	<5
2-Hexanone	<50	<10	<10
Dibromochloromethane	<25	<5	<5
Chlorobenzene	<25	<5	<5
Ethylbenzene	<25	<5	<5
Xylenes (total)	<25	<5	<5
Styrene	<25	<5	<5
Bromoform	<25	<5	<5
1,1,2,2-Tetrachloroethane	<25	<5	<5

µg/L Micrograms/liter

Water samples were analyzed according to EPA CLP.

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte Semi-Volatiles (TCL)	MW-6 (µg/L)	MW-7 (µg/L)	MW-27 Blind Dup of MW-7 (µg/L)
N-Nitrosodimethylamine	<20	<20	<20
Phenol	<20	<20	<20
Bis (2-chloroethyl) ether	<20	<20	<20
2-Chlorophenol	<20	<20	<20
1,3-Dichlorobenzene	<20	<20	<20
1,4-Dichlorobenzene	<20	<20	<20
Benzyl Alcohol	<40	<40	<40
1,2-Dichlorobenzene	<20	<20	<20
2-Methylphenol	<20	<20	<20
Bis (2-chloroisopropyl) ether	<20	<20	<20
4-Methylphenol	<20	<20	<20
3- or 4-Methylphenol	<20	<20	<20
Hexachloroethane	<20	<20	<20
n-Nitrosodi-n-propylamine	<20	<20	<20
Nitrobenzene	<20	<20	<20
Isophorone	<20	<20	<20
2,4-Dimethylphenol	<20	<20	<20
2-Nitrophenol	<20	<20	<20
Benzoic Acid	<100	<100	<100
Bis (2-chloroethoxy) methane	<20	<20	<20
2,4-Dichlorophenol	<20	<20	<20
1,2,4-Trichlorobenzene	<20	<20	<20
Naphthalene	<20	<20	<20
4-Chloroaniline	<40	<40	<40
Hexachlorobutadiene	<20	<20	<20
4-Chloro-3-Methylphenol	<20	<20	<20
2-Methylnaphthalene	<20	<20	<20
Hexachlorocyclopentadiene	<20	<20	<20
2,4,6-Trichlorophenol	<20	<20	<20
2,4,5-Trichlorophenol	<20	<20	<20
2-Chloronaphthalene	<20	<20	<20
2-Nitroaniline	<100	<100	<100
2,6-Dinitrotoluene	<20	<20	<20
Acenaphthylene	<20	<20	<20
3-Nitroaniline	<100	<100	<100
2,4-Dinitrophenol	<100	<100	<100
Acenaphthene	<20	<20	<20
4-Nitrophenol	<100	<100	<100
2,4-Dinitrotoluene	<20	<20	<20
Dibenzofuran	<20	<20	<20
Diethylphthalate	<20	<20	<20
4-Chlorophenyl phenyl ether	<20	<20	<20
Fluorene	<20	<20	<20

TABLE 5
GROUNDWATER ANALYTICAL RESULTS
(CONTINUED)

Analyte Semi-Volatiles (TCL)	MW-6 (µg/L)	MW-7 (µg/L)	MW-27 blind dup. of MW-7 (µg/L)
4-Nitroaniline	<40	<40	<40
4,6-Dinitro-2-methylphenol	<100	<100	<100
n-Nitrosodiphenylamine	<20	<20	<20
4-Bromophenyl phenyl ether	<20	<20	<20
Hexachlorobenzene	<20	<20	<20
Pentachlorophenol	<100	<100	<100
Phenanthrene	<20	<20	<20
Anthracene	<20	<20	<20
Carbazole	<20	<20	<20
Di-n-butylphthalate	<20	<20	<20
Fluoranthene	<20	<20	<20
Pyrene	<20	<20	<20
Butylbenzylphthalate	<20	<20	<20
Bis (2-ethylhexyl) phthalate	<20	<20	<20
3,3'-Dichlorobenzidine	<40	<40	<40
Benzo (a) anthracene	<20	<20	<20
Chrysene	<20	<20	<20
Di-n-octyl phthalate	<20	<20	<20
Benzo (b) fluoranthene	<20	<20	<20
Benzo (k) fluoranthene	<20	<20	<20
Benzo (a) pyrene	<20	<20	<20
Indeno (1,2,3-c,d) pyrene	<20	<20	<20
Dibenz (a,h) anthracene	<20	<20	<20
Benzo (g,h,i) perylene	<20	<20	<20

µg/L Micrograms/liter

Water samples were analyzed according to EPA CLP.

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte Pesticides and PCBs (TCL)	MW-6 (µg/L)	MW-7 (µg/L)	MW-27 Blind Dup of MW-7 (µg/L)
Alpha BHC	<0.10	<0.10	<0.10
Beta BHC	<0.10	<0.10	<0.10
Delta BHC	<0.10	<0.10	<0.10
Gamma BHC - Lindane	<0.10	<0.10	<0.10
Heptachlor	<0.10	<0.10	<0.10
Aldrin	<0.10	<0.10	<0.10
Heptachlor Epoxide	<0.10	<0.10	<0.10
Endosulfan I	<0.10	<0.10	<0.10
Dieldrin	<0.10	<0.10	<0.10
p,p'-DDE	<0.10	<0.10	<0.10
Endrin	<0.10	<0.10	<0.10
Endosulfan II	<0.10	<0.10	<0.10
p,p'-DDD	<0.10	<0.10	<0.10
Endosulfan Sulfate	<0.10	<0.10	<0.10
p,p'-DDT	<0.10	<0.10	<0.10
Endrin ketone	<0.10	<0.10	<0.10
alpha-Chlordane	<0.10	<0.10	<0.10
gamma-Chlordane	<0.10	<0.10	<0.10
Methoxychlor	<0.50	<0.50	<0.50
Toxaphene	<1.0	<1.0	<1.0
Aroclor-1016	<1.0	<1.0	<1.0
Aroclor-1221	<1.0	<1.0	<1.0
Aroclor-1232	<1.0	<1.0	<1.0
Aroclor-1242	<1.0	<1.0	<1.0
Aroclor-1248	<1.0	<1.0	<1.0
Aroclor-1254	<1.0	<1.0	<1.0
Aroclor-1260	<1.0	<1.0	<1.0

µg/L Micrograms/liter

Water samples were analyzed according to EPA SW-846 Method 8081

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

Analyte - Metals (TCL)	MW-6 (mg/L)	MW-7 (mg/L)	MW-27 Blind Dup of MW-7 (mg/L)
Aluminum	1.43	33.6	26.1
Antimony	<0.25	<0.25	<0.25
Arsenic	<0.010	<0.010	<0.010
Barium	0.71	0.20	0.19
Beryllium	<0.005	<0.005	<0.005
Cadmium	<0.005	<0.005	<0.005
Calcium	4.2	267	225
Chromium	<0.05	0.13	0.07
Cobalt	<0.05	0.05	0.05
Copper	0.02	0.07	0.05
Iron	1.43	75.4	67.8
Lead	<0.05	<0.04	<0.04
Magnesium	84	55	45
Manganese	1.62	1.36	1.13
Mercury	<0.0005	<0.005	<0.005
Nickel	<0.04	0.05	0.05
Potassium	3.95	0.509	0.513
Selenium	0.008	<0.005	<0.005
Silver	<0.01	<0.01	<0.01
Sodium	703	456	455
Thallium	<0.1	<0.002	<0.002
Vanadium	0.07	0.25	0.15
Zinc	0.06	0.29	0.23
Cyanide	<0.005	<0.005	<0.005

mg/L Milligrams/liter

All water samples were analyzed according to EPA CLP.

TABLE 6

UST SITE 870 WELL COMPLETION INFORMATION

Well ID	Construction Date	Well Diameter and Material (inches)	Total Depth (ft)	Screened Interval (ft)
MW-1	November 6, 1991	4" PVC	28.20	18-28
MW-2	May 22, 1992	4" PVC	27.90	15-25
MW-3	May 26, 1992	6" PVC	37.24	15-35
MW-4	May 26, 1992	6" PVC	24.68	14-24
MW-5	June 18, 1992	4" PVC	27.39	17.5-27.5
MW-6	June 18, 1992	4" PVC	29.34	20-30
MW-7	June 30, 1992	4" PVC	40.20	28-38
MW-8	June 18, 1992	2" PVC	29.72	20-30
MW-9	June 29, 1992	2" PVC	36.65	15-35
MW-10	September 2, 1992	6" PVC	44.94	25.0-45.5
MW-11	September 8, 1992	6" PVC	45.32	25-45.5
MW-12	September 9, 1992	6" PVC	44.80	24.5-45

APPENDIX A
CLOSURE SAMPLE DATA



AMERICAN
WEST
ANALYTICAL
LABORATORIES

ORGANIC ANALYSIS REPORT

Client: Petroleum Environmental
Date Received: April 26, 1991
Set Identification Number: 5836
Set Description: Four Soil Samples

Contact: Troy Spachman
Received By: Elona Hayward

Analysis Requested:
Total Petroleum Hydrocarbons

Method Ref. Number:
EPA SW-846 #8015 (modified)
(Extraction - GC/FID)

Date Analyzed:
May 2, 1991

463 West 3600 South
Salt Lake City, Utah
84115

Lab Sample ID. Number:
5836-Method Blank

Field Sample ID. Number:
Method Blank

Analytical Results

TPH

Units = mg/kg (ppm)

(801) 263-8686
Fax (801) 263-8687

Compound:

Detection
Limit:

Amount
Detected:

Total Petroleum Hydrocarbons

2.0

<2.0

1. < Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.
2. T = Trace. Detectable amount is lower than the practical quantitation limit for this compound.

Analyzed by: [Signature]

Released by: [Signature]

Laboratory Supervisor

Date: 5/6/91

Report Date 5/6/91

1 of 1



AMERICAN
WEST
ANALYTICAL
LABORATORIES

ORGANIC ANALYSIS REPORT

Client: Petroleum Environmental
Date Received: April 26, 1991
Set Identification Number: 5836
Set Description: Four Soil Samples

Contact: Troy Spachman
Received By: Elona Hayward

Analysis Requested:
Total Petroleum Hydrocarbons

Method Ref. Number:
EPA SW-846 #8015 (modified)
(Extraction - GC/FID)

Date Analyzed:
May 2, 1991

463 West 3600 South
Salt Lake City, Utah
84115

Lab Sample ID. Number:
5836-02

Field Sample ID. Number:
Hill AFB NE End/SS#870T-2

Analytical Results

TPH

Units = mg/kg (ppm)

(801) 263-8686
Fax (801) 263-8687

Compound:

Detection
Limit

Amount
Detected:

Total Petroleum Hydrocarbons

2.0

1,600.

1. < Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.
2. T = Trace. Detectable amount is lower than the practical quantitation limit for this compound.

Analyzed by: SHC

Released by: John L. Magaña

Laboratory Supervisor

Date: 5/6/91

Report Date 5/6/91

1 of 1



AMERICAN
WEST
ANALYTICAL
LABORATORIES

ORGANIC ANALYSIS REPORT

Client: Petroleum Environmental
Date Received: April 26, 1991
Set Identification Number: 5836
Set Description: Four Soil Samples

Contact: Troy Spachman
Received By: Elona Hayward

Analysis Requested:
Total Petroleum Hydrocarbons

Method Ref. Number:
EPA SW-846 #8015 (modified)
(Extraction - GC/FID)

Date Analyzed:
May 2, 1991

463 West 3600 South
Salt Lake City, Utah
84115

Lab Sample ID. Number:
5836-Q1

Field Sample ID. Number:
Hill AFB SW Env/SS#870T-1

Analytical Results

TPH

Units = mg/kg (ppm)

(801) 263-8686
Fax (801) 263-8687

Compound:

Detection
Limit:

Amount
Detected:

Total Petroleum Hydrocarbons

2.0

2,900.

1. < Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.
2. T = Trace. Detectable amount is lower than the practical quantitation limit for this compound.

Analyzed by: [Signature]

Released by: [Signature]

Laboratory Supervisor

Date: 5/6/91

Report Date 5/6/91

1 of 1



AMERICAN
WEST
ANALYTICAL
LABORATORIES

ORGANIC ANALYSIS REPORT

Client: Petroleum Environmental
Date Received: April 26, 1991
Set Identification Number: 5836
Set Description: Four Soil Samples

Contract: Troy Spachman
Received By: Elona Hayward

Analysis Requested:
Total Petroleum Hydrocarbons

Method Ref. Number:
EPA SW-846 #8015 (modified)
(Extraction - GC/FID)

Date Analyzed:
May 2, 1991

463 West 3600 South
Salt Lake City, Utah
84115

Lab Sample ID. Number:
5836-04

Field Sample ID. Number:
Hill AFB SW End/SS#870 P-1

Analytical Results

TPH

Units = mg/kg (ppm)

(801) 263-8686
Fax (801) 263-8687

Compound:

Detection
Limit:

Amount
Detected:

Total Petroleum Hydrocarbons

2.0

<2.0

1. < Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.
2. T = Trace. Detectable amount is lower than the practical quantitation limit for this compound.

Analyzed by:

Released by:

Laboratory Supervisor

Date: 5/6/91

Report Date 5/6/91

1 of 1



AMERICAN
WEST
ANALYTICAL
LABORATORIES

SOIL ANALYSIS REPORT

Client: Petroleum Environmental
Date Received: April 26, 1991
Set Identification Number: 5836

Contact: Troy Spackman
Received By: Elona Hayward

Analysis Requested:
Uniform Soil Classification

Method Ref. Number:
2488-84, X4.2

463 West 3600 South
Salt Lake City, Utah
84115

Analytical Results

Lab Sample ID. #:

Field Sample ID. #

Classification:

5836-03

Hill AFB SW End/SS#370TG-1

Well Graded Sand
w/Silt (SW-SM)

(801) 263-8686
Fax (801) 263-8687

Analyzed by:

Released by:

Date: 5/6/91

Report Date 5/6/91

1 of 1

CHAIN OF CUSTODY RECORD # 5836

PROJECT NO. 90-215		PROJECT NAME HAFB		RETURN TO: Petroleum Environmental Services 2440 South 3270 West Salt Lake City, Utah 84119	
SAMPLERS: (Signature) <i>Tracy Spivey</i>				SAMPLE SEALED Y/N	
NO. OF CONTAINERS		Method B020 / B02		Method 413.1	
Method B015 Modified		U.S.C.		Other	
Other		Other		REMARKS	
Sample No.	Date	Time	Sample Location		
SS#8701-1	4-26	1:06	SW. End		
SS#8701-2	4-26	1:05	N.E. End		
SS#8701-3	4-26	1:00	SW. End		
SS#870 P-1	4-26	1:15			
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date
<i>Tracy Spivey</i>		4-26	4:00		
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date
<i>Tracy Spivey</i>					
Witness (Signature)		Date	Time	Received for Lab by: (Signature)	Date
				<i>Tracy Spivey</i>	4/26/91
				Time	1:00
				Remarks	

APPENDIX B
SOIL ANALYTICAL DATA

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 6-25-92
Agency Identification Number S92-0427-BC

General Set Comments

No corrections were made for the percent moisture content of the soils.

ANALYTICAL REQUEST FORM

1. ☒ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE _____

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 6/17/92 Purchase Order No. 2908 0313
 3. Company Name J/M
 Address 4525 S. Wasatch Blvd.
SLC ut 84104
 Person to Contact Bob G. Galt
 Telephone (801) 292-1900
 Fax Telephone () _____
 Billing Address (if different from above) _____

4. Quote No. _____
 DCL Project Manager R. Potter

5. Sample Collection

Sampling Site HA 120
 Industrial Process _____
 Date of Collection _____
 Time Collected _____
 Date of Shipment _____
 Chain of Custody No. _____

6. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (mL/Liters)	ANALYSES REQUESTED - Use Method Number if Known
EL 2415	T-820-5-MW-U-12	HP/15/50/100	Soil / 12.5mL	8015
↓	"	"	"	802. AS TP-4
2416	T-820-6-MW-U-12	HP/15/50/100	Soil / 12.5mL	8015
↓	"	"	"	802. AS TP-4
2417	T-820-7-MW-U-12	HP/15/50/100	Agueous	8015

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS

MUST BE COMPLETED FOR ENVIRONMENTAL SAMPLES - See General Services Terms and Conditions: QC samples billed at regular sample rate

☒ METHOD QC SAMPLES

(Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES

(Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED

(May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments

Note TP-4 Stds. are to be used for TPH analysis

Possible Contamination and/or Chemical Hazards

HC - Hydrocarbon

7. Requested by

Bob G. Galt

960 West LeVoy Drive / Salt Lake City, UT 84123
 4388 Glendale-Milford Road / Cincinnati, OH 45242

800-356-9135 or 801-266-7700 / FAX: 801-268-9992
 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION:

WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

Analysis:

Comments:

ORIGINAL FIELD SAMPLE CONTAINER(S) FOR ANALYSIS OF: →

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

[illegible]

IS SET CONTINUED ON CONTINUATION PAGE?		YES	NO
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Revised 04/03/92

Splits

[illegible]

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

SAMPLE PREP / ANALYSIS FOR: _____

SAMPLE PREPARED BY: _____
 Date/Time: _____
 Prepared/Analyzed by: _____

[illegible]



1. ☒ **REGULAR Status**

☐ **RUSH** Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE _____

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 6/17/92 Purchase Order No. 2208, 0313
Company Name JMM
Address 4525 S. Wasatch Blvd.
SLC ut 84144
Person to Contact Bob Glink
Telephone (801) 272-1900
Fax Telephone () _____
Billing Address (if different from above)

4. Quote No. _____
DCL Project Manager R. Pater

5. Sample Collection

Sampling Site HA 721

Industrial Process _____

Date of Collection _____

Time Collected _____

Date of Shipment _____

Chain of Custody No. _____

6. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (mL/Liters)	ANALYSES REQUESTED - Use Method Number if Known
EL 2415	T-870-6-AW-U-92	44/15/50/10	Soil / 12.5mL	8015
↓	"	"	" / "	802. AS TP-4
2416	T-870-6-AW-U-92	44/15/50/10	Soil / 12.5mL	8015
↓	"	"	"	802. AS TP-4
2417	T-870-6-AW-U-92	1/2	Gaseous	8015

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS

MUST BE COMPLETED FOR ENVIRONMENTAL SAMPLES - See

General Services Terms and Conditions: QC samples billed at regular sample rate

☒ METHOD QC SAMPLES

(Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES

(Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED

(May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments

Possible Contamination and/or Chemical Hazards

7. Requested by

960 West LeVoy Drive / Salt Lake City, UT 84123
4388 Glendale-Milford Road / Cincinnati, OH 45242

800-356-9135 or 801-266-7700 / FAX: 801-268-9992
800-458-1493 or 513-733-5336 / FAX: 513-733-5347

DATA CHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION:

WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CON-TAINERS		REMARKS	
2208.0313		HAFB WSTs					
SAMPLERS: (Signature)							
Robert. Dwy.							
STA. NO.	DATE	TIME	COMP	GLS	STATION LOCATION	NO. OF CON-TAINERS	REMARKS
1125	6/12/92			✓	T-870-5-MW-11-92-HF/15.5'-16'	1	NOTE: For TPA use
6/12/92	1125			✓	T-870-5-MW-11-92-HF/15.5'-16'	1	SP-4 std.
6/12/92	1615			✓	T-870-6-MW-11-92-HF/21'-21.5'	1	
6/12/92	1615			✓	T-870-6-MW-11-92-HF/21'-21.5'	1	For questions contact Bob
6/12/92				✓	Trip Black 6/12/92	1	GLS cut @ 272 - 190 or 580 - 9740'
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)		DATE / TIME	
6/12/92		1125		6/12/92		1125	
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)		DATE / TIME	
6/12/92				6/12/92			
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED FOR LABORATORY BY: (Signature)		DATE / TIME	
6/12/92				6/12/92		0800	



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 7/2/92
Agency Identification Number S92-0427-AC

General Set Comments

Total hydrocarbons is the area sum of the peaks in the JP-4 range minus the solvent peak. The peak pattern observed in the samples eluted later than JP-4.

The control spike had 82% recovery.



ANALYTICAL REQUEST FORM

1. ☒ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE _____

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 6/17/92 Purchase Order No. 2208.0313

3. Company Name JAM

Address 4525 S. Wasatch Blvd.

SLC ut 84104

Person to Contact Robb G. Galt

Telephone (SD) 292-1900

Fax Telephone () _____

Billing Address (if different from above) _____

4. Quote No. _____

DCL Project Manager R. Potter

5. Sample Collection

Sampling Site HARD

Industrial Process _____

Date of Collection _____

Time Collected _____

Date of Shipment _____

Chain of Custody No. _____

6. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (mL/Liters)	ANALYSES REQUESTED - Use Method Number if Known
EL 2415	T-820-5-MW-U-82	HP/15.5-16	Soil / 125ml	8015
↓	"	"	"	8020 AS TP-4
2416	T-820-6-MW-U-92	HP/21-21.5	Soil / 125ml	8015
↓	"	"	"	8020 AS TP-4
2417	Trip Blank 6/17/92	Gaseous		8015

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS

MUST BE COMPLETED FOR

ENVIRONMENTAL SAMPLES - See

General Services Terms and

Conditions: QC samples billed
at regular sample rate

☒ METHOD QC SAMPLES

(Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES

(Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED

(May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments

Note TP-4 Stats are to be used for TPH analysis

Possible Contamination and/or Chemical Hazards

HC - Hydrocarbon

7. Requested by

Robb G. Galt

960 West LeVoy Drive / Salt Lake City, UT 84123

4388 Glendale-Milford Road / Cincinnati, OH 45242

800-356-9135 or 801-266-7700 / FAX: 801-268-9992

800-458-1493 or 513-733-5336 / FAX: 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION:

WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

CHAIN OF CUSTODY RECORD

ANALYSIS

USE 1 COLUMN PER BOTTLE

[illegible]



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 6-30-92
Agency Identification Number S92-0429-BB

General Set Comments

No corrections were made for the percent moisture content of the soils.

CHAIN-OF-CUSTODY

Splits

[illegible]

1

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

[illegible]

CHAIN OF CUSTODY RECORD

ANALYSIS

[illegible]

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 7/2/92
Agency Identification Number S92-0429-AB

General Set Comments

Total hydrocarbons is the area sum of the peaks in the JP-4 range minus the solvent peak. The peak pattern observed in the sample eluted later than JP-4. The reported results are quantitated from only those peaks eluting within the JP-4 range, and would be about 10% higher if it included the later eluting peaks that are outside the JP-4 range.
The control spike had 82% recovery.

ANALYTICAL REQUEST FORM

MONTGOMERY LABORATORIES

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CON-TAINERS		REMARKS	
2204.0313		HAFB					
SAMPLES: (Signature) <i>Mark L. Fox</i> (DAF)							
STA. NO.	DATE	TIME	COM.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	REMARKS
	6/19/92	1700		✓	T870-1-TWP-4-92-HF/11-11.5"	2	✓ Note: TPH is JPA
	6/14/92			✓	Tip Black 6/18/92	2	✓ (RAC)
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)		DATE / TIME	
<i>Mark L. Fox</i>		6/19/92 1540		<i>Mark L. Fox</i>		6/19/92 1545	
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)		DATE / TIME	
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED FOR LABORATORY BY: (Signature)		DATE / TIME	

CHAIN OF CUSTODY RECORD

ANALYSIS

[illegible]

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

•

Comments:

IS SET CONTINUED ON CONTINUATION PAGE? ☐ YES ☐ NO

Revised 04/03/92

ANALYTICAL REQUEST FORM

1. ☒ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE _____

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 6/19/92 Purchase Order No. 2208.0311
 3. Company Name JMM
 Address 4525 S. Wasatch Blvd
SLC UT 84124
 Person to Contact Bob Glascock
 Telephone (801) 272-1400
 Fax Telephone () _____
 Billing Address (if different from above) _____

4. Quote No. _____
 DCL Project Manager R. Potter
 5. Sample Collection
 Sampling Site HAFB
 Industrial Process _____
 Date of Collection _____
 Time Collected _____
 Date of Shipment _____
 Chain of Custody No. _____

6. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
EL 2419	T870-1-TWP-U-92	HE/HLS	5.0 125mL	DTG & Napthalene (8015)
↓	"	"	Soil (25mL)	TPH as JP-4 (8020)
↓ 2420	T870-1-TWP-U-92	HE/HLS	2.0mL	DTG & N (8015)

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS

MUST BE COMPLETED FOR ENVIRONMENTAL SAMPLES - See General Services Terms and Conditions: QC samples billed at regular sample rate

☒ METHOD QC SAMPLES (Lab QC according to published methods)
☐ PROJECT PLAN QC SAMPLES (Lab QC according to provided QA/QC Plan)
☐ NO QC SAMPLES REQUESTED (May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments

Note: TPH as JP-4

Possible Contamination and/or Chemical Hazards

7. Requested by

B. Glascock (RAG)

960 West LeVoy Drive / Salt Lake City, UT 84123
 4388 Glendale-Milford Road / Cincinnati, OH 45242

800-356-9135 or 801-266-7700 / FAX: 801-268-9992
 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION:


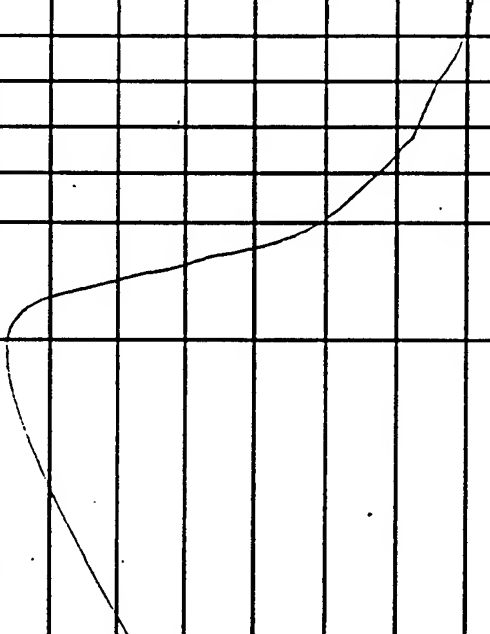
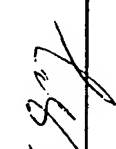


WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

MONTGOMERY LABORATORIES

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CON-TAINERS		ANALYSIS	
2204.0313		HAFB				USE 1 COLUMN PER BOTTLE	
SAMPLES: (Signature) 				STATION LOCATION		REMARKS	
STA. NO.	DATE	TIME	COMP	GRAB			
	6/19/92	1700		✓	T-870-1-TWP-4-92-HF/11-11.5"	✓	X Note: TPL 53 JPA
	6/19/92				Trip Blank 6/18/92	✓	(RAC)
							
RELINQUISHED BY: (SIGNATURE)		DATE / TIME		RECEIVED BY: (SIGNATURE)		DATE / TIME	
		6/19/92				6-19-92 1545	
RELINQUISHED BY: (SIGNATURE)		DATE / TIME		RECEIVED BY: (SIGNATURE)		DATE / TIME	
							
RELINQUISHED BY: (SIGNATURE)		DATE / TIME		RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE / TIME	

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 7-28-92
Agency Identification Number S92-0517-BC

General Set Comments

Hold times were inadvertantly exceeded for samples.

THIS SET DIES:	TIME	DEADLINE	STARTED
----------------	------	----------	---------

THIS SET DIES:	TIME	DEADLINE	STARTED
----------------	------	----------	---------

SDG/Batch #:	
DCL Set ID: 592 0517	
Client: JM Montgomery	Account: 3018
Comments:	

Received: Date/Time/Signature 7-21-12 / 0800

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

ORIGINAL FIELD SAMPLE CHAIN-OF

[illegible]

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CONTAINERS	STATION LOCATION				REMARKS
2208.0302		HAB WTS			STA. NO.	DATE	TIME	GRAB	
SAMPLERS: (Signature)				T-870-2-TWP-U-92-HF/17-12.5				<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/91				1146	✓	1	✓		
6/30/92				1145	✓	2	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>Note: Sample T-870-2-Mw etc.</p> <p>only has 125 ml if possible &</p> <p>enough volume run both TPH</p> <p>& BTX & N.</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>For questions call B. Glessner</p> <p>@ 242-1900</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e. w. (8015)</p> <p>Ind. h. i. c. l. (8015)</p>	
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓		
6/29/92				1146	✓	1	✓	<p>TPH 0.570-4 (8020)</p> <p>BTX & N. d. H. c. l. e.</p>	

26-12-2 no

DATA CENTRAL

☐ **RUSH** Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY

DATE _____

DATE _____
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

4. Quote No. _____
DCL Project Manager R. Potter

5. Sample Collection

Sampling Site HAFB

Industrial Process

Date of Collection 6/29-30/92

Time Collected

Date of Shipment

Chain of Custody No.

[illegible]

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type: Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS

MUST BE COMPLETED

☒ METHOD 800

6. Q C REQUIREMENTS

**REQUIREMENTS
MUST BE COMPLETED FOR
ENVIRONMENTAL**

ENVIRONMENTAL SAMPLES - See
General Services T

General Services Terms and
Conditions: 00

Conditions: QC samples billed at regular cost.

at regular sample rate

☒ METHOD QC SAMPLES
(Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES
(Lab QC 2000...)

☐ NO QC SAMPLES REQUIRED (Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED
(May not conform to)

10 SAMPLES REQUESTED
(May not conform to Agency requirements)

☐ .OTHER (as specified below)

Comments

Possible Contamination and/or Chemical Hazards

7. Requested by

960 West LeVoy Drive / Salt Lake City, UT 84123
4388 Glendale-Milford Road / Cincinnati, OH 45242

800-356-9135 or 801-266-7700 / FAX: 801-268-9992
800-458-1493 or 513-733-5336 / FAX: 513-733-5347
- A SORENSON

DATA CHEM LABORATORIES - A SORENSON COMPANY

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960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 8/3/92
Agency Identification Number S92-0517-AC

General Set Comments

Total hydrocarbons is the area sum of all the peaks in the JP-4 range minus the solvent peak.

The control spike had 57 % recovery.

Sample Comments

Laboratory
Number

-- Comment --

EL 2858

Sample appeared to be diesel and had many peaks beyond JP-4 range.

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]

26-12-20 24-12-20 no

☐ **RUSH** Status Requested - ADDITIONAL CHARGE

4. Quote No. _____
DCL Project Manager R. Potter

5. Sample Collection

Sampling Site HAEB

Industrial Process _____

Date of Collection 6/29-30/92

Time Collected _____

Date of Shipment _____

Chain of Custody No. _____

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ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 7-28-92
Agency Identification Number S92-0517-CC

General Set Comments

Hold times were inadvertantly exceeded for samples.


CHAIN-OF-CUSTODY

Environmental Contract Program

THIS SET DIES:	TIME	DEADLINE	STARTED
Preparation:			
Analysis:			

[illegible]

ORIGINAL FIELD SAMPLE CONTAINER(S) FOR ANALYSIS OF: →

Received: Date/Time/Signature 7-21-12 / 0800 / 

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

SAMPLE PREP/ANALYSIS FOR:

Prepared/Analyzed by:

100

Date/Time:

[illegible]

IS SET CONTINUED ON CONTINUATION PAGE? YES ☐ NO ☐

Revised 06/92

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]

DATACEN
LABORATORY

- RESULTS REQUIRED BY _____ DATE _____
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

Billing Address (different from above)

Chain of Custody No. _____

[illegible]

Specify: Solid sorbent tube, e.g. Charcoal; Filter type: Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS
MUST BE COMPLETED

☒ METHOD 8000

Conditions: QC samples billed at regular sample rate

- ☐ OTHER (as specified below)

Comments

Possible Contamination and/or Chemical Hazards

7. Requested by Bob C. Green

* Put comment on report: "Inadvertents exceeded held times" per Randy

960 West LeVoy Drive / Salt Lake City, UT 84123
4388 Glendale-Milford Road / Cincinnati, OH 45242

800-356-9135 or 801-266-7700 / FAX: 801-268-9992
800-458-1493 or 513-733-5336 / FAX: 513-733-5347
- A SORENSON

DATA CHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION:

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Date 7-7-92

Agency Identification Number S92-0453-BB

Account No. 03018

James M. Montgomery Consulting Engineers
4525 Wasatch Blvd, Suite 200
Salt Lake City, UT 84124
Attention: Bob Glascott

FAX (801) 272-0430
Telephone (801) 272-1900

Sampling Collection and Shipment

Sampling Site HAEB Date of Collection July 01, 1992

Date Samples Received at Laboratory July 02, 1992

Analysis

Method of Analysis 8020MOD

Date(s) of Analysis July 06, 1992

Analytical Results

[illegible]

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
() Parameter between LOD and LOQ.

meter not reques
NOT COMPLETED

Analyst: Arthur B. Clarke

Reviewer:

Laboratory Supervisor: Richard W. Wade

JAMES M. MONTGOMERY

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 7-7-92
Agency Identification Number S92-0453-BB

General Set Comments

No corrections were made for the moisture content of the soil.

DataChem Laboratories
CHAIN-OF-CUSTODY
Environmental Contract Program

THIS SET DIES:	TIME	DEADLINE	STARTED
Preparation:			
Analysis:			

[illegible][illegible]

CANARY - CUSTOMER COPY

CHAIN OF CUSTODY RECORD

ANALYSIS

PROJECT/JOB #		PROJECT NAME		NO. OF CONTAINERS		REMARKS	
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	REMARKS
2204.0702	HAFB USTs						
SAMPLERS: (Signature) <i>Robert A. Blomquist</i>							
711/42	7/1/92	1100		✓	T-870-7-MW-U-92-HF/59.5-60.1	1	Note: TPH w/ TP-4
711/92	7/1/92	1400		✓	T-870-7-MW-U-92-HF/59.5-60.1	1	Std.
For questions contact Bob Clark @ 272-1900							
<div style="display: flex; justify-content: space-between;"> <div> RECEIVED BY: (SIGNATURE) <i>Robert A. Blomquist</i> </div> <div> RECEIVED BY: (SIGNATURE) <i>[Signature]</i> </div> </div>							
<div style="display: flex; justify-content: space-between;"> <div> RECEIVED BY: (SIGNATURE) <i>[Signature]</i> </div> <div> RECEIVED BY: (SIGNATURE) <i>[Signature]</i> </div> </div>							
<div style="display: flex; justify-content: space-between;"> <div> RECEIVED BY: (SIGNATURE) <i>[Signature]</i> </div> <div> RECEIVED BY: (SIGNATURE) <i>[Signature]</i> </div> </div>							

* No Info. received yet
from project manager.

DATA CHEM LABORATORIES PROJECT PROTOCOL WORKSHEET

CLIENT NAME J M Montgomery	PROJECT NAME	PROJECT MANAGER Rand Potter	ACCOUNT NUMBER 3018
-------------------------------	--------------	--------------------------------	------------------------

PROJECT TYPE

- ☐ CLP SOW _____ ☐ SW846 Rev. _____ ☐ EPANPDES
☐ EPA SDWA _____ ☐ USATHAMA _____ ☐ NIOSH
☐ OSHA _____ ☐ Other (Explain) _____

Comments _____

SPECIFIC QC REQUIREMENTS (e.g., MS, MSD, LODs)

Explain _____

PREPARATION PROCEDURE/REQUIREMENTS

- ☐ CLP SOW _____ ☐ SW846 Rev. _____
☐ USATHAMA _____ ☐ NIOSH
☐ DCL-SOP _____ ☐ Other (Explain) _____
☐ NPDES/SDWA _____

Comments _____

ANALYTICAL PROCEDURE/REQUIREMENTS

- ☐ CLP SOW _____ ☐ SW846 Rev. _____
☐ USATHAMA _____ ☐ NIOSH
☐ DCL-SOP _____ ☐ Other (Explain) _____
☐ NPDES/SDWA _____

Comments _____

REPORTING PROCEDURE/REQUIREMENTS

- ☐ CLP (Full) _____ ☐ CLP Raw Data _____ ☐ DCL Report Form
☐ CLP Diskette (SOW) _____ ☐ CLP Forms _____ ☐ DCL QC Sheets
☐ Custom Diskette _____ ☐ USATHAMA _____ ☐ Other (Explain) _____

Comments _____

OTHER SPECIAL INSTRUCTIONS (e.g., additional analytes)

Approved By: _____

Project Manager

Date

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2

Date 7/13/92
Agency Identification Number S92-0453-AB

General Set Comments

Total hydrocarbons is the area sum of the peaks in the JP-4 range minus the solvent peak.

The control spike had 78 % recovery.

CANARY - CUSTOMER COPY

MONTGOMERY LABORATORIES

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CONTAINERS	REMARKS						
2204.0702		HAFB USTs									
ANALYST: (Signature) <i>Robert A. Blongnot</i>											
STA. NO.	DATE	TIME	CONR	GRAB	STATION LOCATION						
711/92	7/1/92	1100		✓	T-870-7-MW-U-92-HF/59.5-60						
711/92	7/1/92	1400		✓	T-870-7-MW-U-92-HF/59.5-60						
<div style="border: 1px solid black; padding: 10px; transform: rotate(-45deg); transform-origin: center;"> TPH as TP-4 (82.2) (81.5) (81.5) </div>											
RELINQUISHED BY: (SIGNATURE)		DATE / TIME		RECEIVED BY: (SIGNATURE)	DATE / TIME						
<i>Robert A. Blongnot</i>		7/1/92 1910		<i>Robert A. Blongnot</i>							
RELINQUISHED BY: (SIGNATURE)		DATE / TIME		RECEIVED BY: (SIGNATURE)	DATE / TIME						
RELINQUISHED BY: (SIGNATURE)		DATE / TIME		RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE / TIME						
				<i>[Signature]</i>	7-2-92 0800						

Note: TPH w/ TP-4

std.

For questions contact

Bob G. Smith @ 272-1900

[Signature]

APPENDIX C
SOIL BORING LOGS

HORIZONTAL COORDINATES:
283,841.75N 1,862,510.36EDATE STARTED: 11-6-91 DATE COMPLETED 11-6-91
GROUND SURFACE ELEVATION (above MSL): 4,683.90'

DEPTH (FEET)	GRAIN SIZE			MAX PID READING (ppm)	RECOVERY	SAMPLE TYPE*	SAMPLE INTERVAL	GRAPHIC LOG	LITHOLOGIC LOG	MONITORING WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
0									Had water in concrete cut as a result, sample saturated.		4,684
		70	30	0.5		10"	SS	SM	Silty sand, dark yellowish brown (10YR4/4), trace gravel subrounded, medium to fine sand, subangular to subrounded, low plasticity, soft, very moist.		
		70	30	0.1		10"	SS		As above with color change to strong brown (7.5YR4/6).		
5		70	30	3.2		18"	SS		As above with color change, yellowish brown (10YR4/6).		4,679
		70	30	373		14"	SS		Silty sand, light brownish gray (10YR6/2), medium to fine sand, subangular to subrounded, low plasticity, firm, strong hydrocarbon odor, weathered, moist.		
10		70	30	350		16"	SS		Color change to grayish brown (10YR5/2), very fine to fine sand, low plasticity, firm, moist; alternating layers of clayey sand and silty sand ranging from 2 to 8 inches, the clayey shows black mottling with a strong hydrocarbon odor, contaminants follows fractures.		4,674
		70	30	889		6"	SS		As above with alternating layers of clayey sand and silty sand ranging from 2 to 3 inches, strong hydrocarbon odor.		
		50	50								
		70	30	241		17"	SS		As above, slight color change (10YR5/3), strong hydrocarbon odor, alternating layers with clayey sands ranging from 3 to 6 inches, showing some hydrocarbon staining and iron staining.		
15		70	30	1481		15"	SS		As above (10YR5/3), with strong hydrocarbon odor, very moist, clayey sand medium plasticity, has very weathered odor, shows iron mottling to olive green.		4,669
		50	50						MW870A-01 Chemical sample at 16.0-17.0 feet.		
		50	50	545		10"	SS	SC	Clayey sand, brown (10YR5/3), very fine to fine sand, subangular to subrounded, medium plasticity, firm, very moist; strong hydrocarbon odor. Has approximately 4 inches of silty sand, dark gray (10YR4/1) definitely hydrocarbon stained.		
									MW870A-01 Chemical sample at 18.0-19.0 feet.		
		50	50	790		16"	SS		As above, brown (10YR5/3), strong hydrocarbon odor, some staining, saturated last 8 inches sand medium to fine, low plasticity, firm, saturated.		

JMM James M. Montgomery

SS California Split Spoon Sampler (2.0" I.D.)
CC Continuous CoreHILL AIR FORCE BASE
MW870A-01
(Monitoring Well)

HORIZONTAL COORDINATES:
?N ?EDATE STARTED: 11-6-91 DATE COMPLETED 11-6-91
GROUND SURFACE ELEVATION (above MSL): ?'

DEPTH (FEET)	GRAIN SIZE			MAX PID READING (ppm)	RECOVERY	SAMPLE TYPE*	SAMPLE INTERVAL	GRAPHIC LOG	LITHOLOGIC LOG	MONITORING WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
20								SC	As above (10YR5/3), strong hydrocarbon odor, some staining, saturated last 8 inches sand medium to fine, low plasticity, firm, saturated.		4,664
		70	30	190				SM	Silty sand, brown (10YR5/4), medium to fine sand, subangular to subrounded, low plasticity, firm, saturated; with hydrocarbon odor.		
					16"	SS					
		60	40								
					18"	SS					
25		60	40	142					As above, poor recovery, saturated.		4,659
					4"	SS			MW870A-01 Geotechnical sample at 25.5-26.0 feet.		
					12"	SS					
30	60	40	159						As above, yellowish brown (10YR5/4), saturated.		4,654
T.D. 30.0'											
35											4,649

JMM James M. Montgomery

SS California Split Spoon Sampler (2.0" I.D.)
CC Continuous CoreHILL AIR FORCE BASE
MW870A-01
(Monitoring Well)

PROJECT NO. 2208.0402





DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-2-MW-U-92-HF Northing: 283,846.24 Easting: 1,862,389.21										ELEVATION (FEET)															
	Date Drilled: 5-2-92 Date Completed: 5-20-92 Logged By: Bob Glascott										Ground Surface Elevation (ft.): 4,681.89 Measuring Point (MP) Elevation (ft.): 4,684.39 MP is Top of PVC Casing Datum: NGVD (1929)																									
	Drilling Contractor: Layne Environmental Drilling Method: Hollow Stem Auger																																			
Borehole: Total Depth (ft.) <u>31.5</u> Diameter (in.) <u>10</u> Well Screen: Diameter (in. I.D.) <u>4</u> Depth (ft.) <u>25-15</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.020</u> Inch Blank Casing: Diameter (in. I.D.) <u>4</u> Length (ft.) <u>15-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>25-13</u> Bentonite Seal (ft.) <u>13-11</u> Cement Grout Seal (ft.) <u>11-0</u> Depth to Water from MP (ft) <u>24.38</u> Date Measured <u>7-2-92</u>																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4" style="text-align: left;">GRAIN SIZE</th> <th rowspan="2" style="text-align: center;">OVM READING (ppm)</th> <th rowspan="2" style="text-align: center;">BLOWS (6 IN.)</th> <th rowspan="2" style="text-align: center;">SAMPLE TYPE*</th> <th rowspan="2" style="text-align: center;">SAMPLE RECOVERY</th> <th rowspan="2" style="text-align: center;">GRAPHIC LOG</th> <th rowspan="2" style="text-align: center;">LITHOLOGIC LOG</th> <th rowspan="2" style="text-align: center;">WELL COMPLETION DETAIL</th> </tr> <tr> <th style="text-align: center;">% GRAVEL</th> <th style="text-align: center;">% SAND</th> <th style="text-align: center;">% FINES</th> <th></th> </tr> </table>																						GRAIN SIZE				OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	% GRAVEL	% SAND	% FINES	
GRAIN SIZE				OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL																										
% GRAVEL	% SAND	% FINES																																		
0	10	70	20	0.2	2			SM	Silty sand, very dark grayish brown (10YR3/2), fine to medium sand, gravel to 1/2 inch in diameter, subrounded, loose, moist; no hydrocarbon odor.	MP 4,684.4																										
					2	C				10" Borehole																										
1					3					4,683.4																										
										4" Schedule 40 PVC Casing																										
2										4,682.4																										
										Cement-Bentonite Grout Seal																										
3										4,681.4																										
4										4,680.4																										
								SC																												

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-2-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-2-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG		
5		60	40	0.2	6				Clayey sand, dark yellowish brown (10YR4/4), very fine sand, medium dense, moist; iron staining present in bedding, thin white vertical lines, clay lenses 1/16 inch thick.		4,679.4
6					18	C					4,678.4
		90	10		15					Cement-Bentonite Grout Seal	
7									Poorly-sorted sand, light yellowish brown (10YR4/4), fine sand, subangular to subrounded, medium dense, slightly moist.		4,677.4
8											4,676.4
9											4,675.4
										4" Schedule 40 PVC Screen	
10		80	20	1.2	7				Silty sand, yellowish brown (10YR5/4), fine to very fine sand, subangular to subrounded, medium dense, moist.		4,674.4
		95	5		19	C			Poorly-sorted sand, yellowish brown (10YR5/6), fine sand, subangular to subrounded, dense, moist.		4,673.4
11					23					Bentonite Seal	
12											4,672.4
13											4,671.4
14											4,670.4

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-2-MW-U-92-HF
 (Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-2-MW-U-92-HF		WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG			
15		70	30	>1000	7				Silty sand, brown (10YR5/3), fine sand, subangular to subrounded, medium dense, moist.			4,669.4
		90	10		7	C			Poorly-sorted sand, pale brown (10YR6/3), fine to very fine, subangular to subrounded, slightly moist.			
16					8				As above.			4,668.4
									As above, strong hydrocarbon odor and some faint staining..			
	65	35	>1000		6				Silty sand, yellowish brown (10YR5/4), fine sand, medium dense, moist; strong hydrocarbon odor.			4,667.4
17		90	10		7	C			Poorly sorted sand, light yellowish brown (10YR6/4), fine to very fine sand, medium dense, slightly moist.			
					10							4,666.4
18					6							
	55	45							Silty sand, dark grayish brown, (10YR4/2), fine to very fine sand, medium dense, very moist to wet, strong hydrocarbon odor.			4,665.4
19										4" Schedule 40 PVC Screen		
20												4,664.4
21										4" Schedule 40 PVC Screen		4,663.4
22												4,662.4
23										#10-20 Sand		4,661.4
										0.010" Slot Size		
24												4,660.4

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-2-MW-U-92-HF
(Monitoring Well)

- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

**HILL AIR FORCE BASE
T-870-2-MW-U-92-HF
(Monitoring Well)**

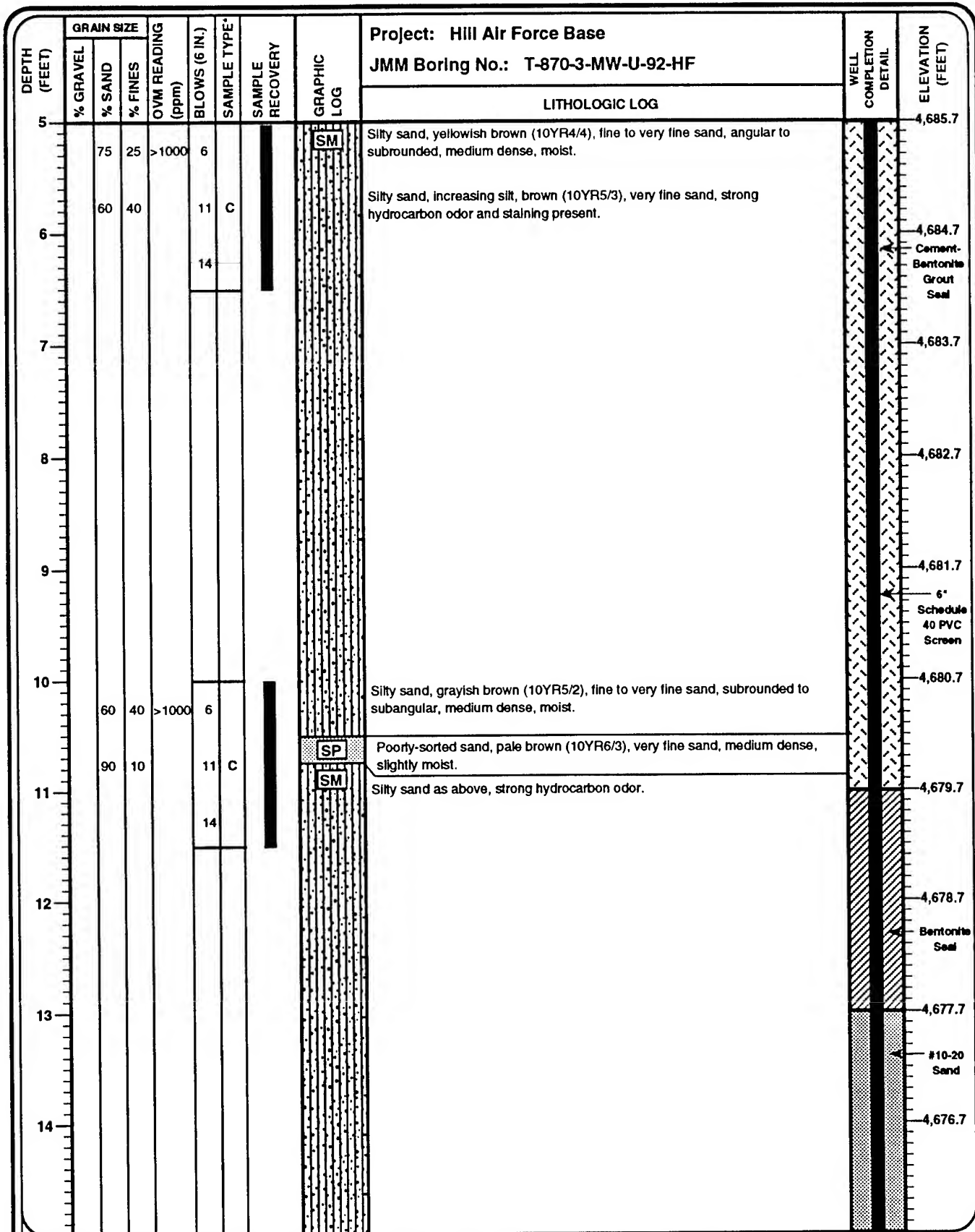
DEPTH (FEET)	Project: Hill Air Force Base Date Drilled: 5-26-92 Date Completed: 5-26-92 Logged By: Bob Glascott Drilling Contractor: Layne Environmental Drilling Method: Hollow Stem Auger					JMM Boring No.: T-870-3-MW-U-92-HF Northing: 283,882.19 Easting: 1,862,533.09 Ground Surface Elevation (ft.): 4,688.43 Measuring Point (MP) Elevation (ft.): 4,690.67 MP is Top of PVC Casing Datum: NGVD (1929)					ELEVATION (FEET)
	Borehole: Total Depth (ft.) <u>36.5</u> Diameter (in.) <u>13</u> Well Screen: Diameter (in. I.D.) <u>6</u> Depth (ft.) <u>35-15</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u> Blank Casing: Diameter (in. I.D.) <u>6</u> Length (ft.) <u>15-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>35-13</u> Bentonite Seal (ft.) <u>13-11</u> Cement Grout Seal (ft.) <u>11-0</u> Depth to Water from MP (ft) <u>26.30</u> Date Measured <u>5-27-92</u>										
	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	
	% GRAVEL	% SAND	% FINES								
0	10	70	20	2.0	5			SM	Silty sand, very dark grayish brown (10YR3/2), fine sand, angular to subrounded, medium dense, moist; faint hydrocarbon odor.	MP 4,690.7 13" Borehole 4,689.7 6" Schedule 40 PVC Casing 4,688.7 Cement-Bentonite Grout Seal 4,687.7 4,686.7	
1					8	C					
2					8						
3											
4											

JMM James M. Montgomery

- *C California Split Spoon Sampler (2.5" I.D.)
 S Standard penetration test sampler
 c Cuttings
 Elevation of ground water



HILL AIR FORCE BASE
T-870-3-MW-U-92-HF
(Monitoring Well)



JMM James M. Montgomery



- *C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-3-MW-U-92-HF
(Monitoring Well)

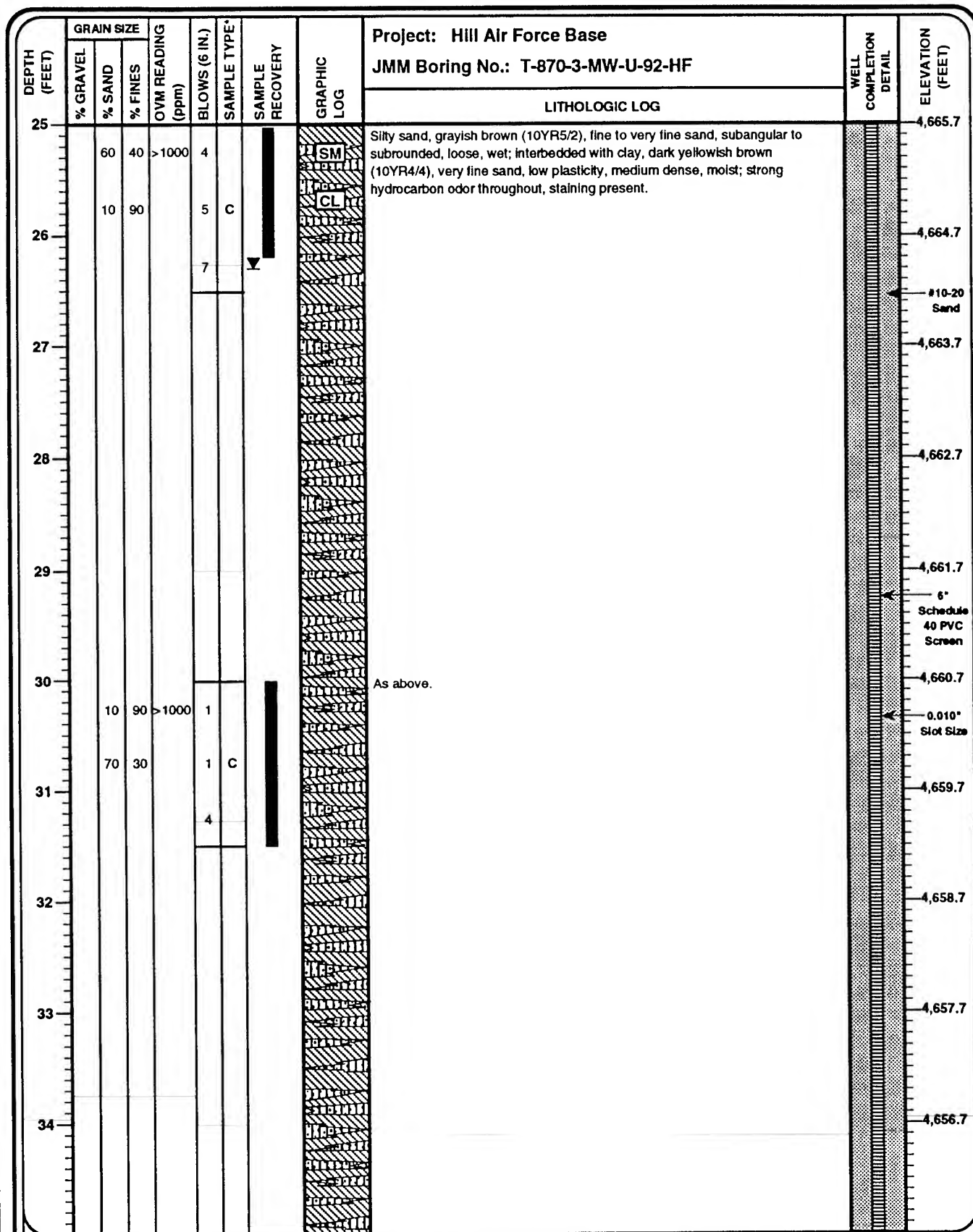
DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
15	60	40	>1000	8				SM	Silty sand, dark grayish brown (10YR4/2), fine to very fine sand, medium dense, very moist; strong hydrocarbon odor, weathered.		4,675.7
					12	C					4,674.7
					19						4,673.7
											4,672.7
											4,671.7
											4,670.7
20	60	40	>1000	2					Silty sand, grayish brown (10YR5/2), very fine sand, loose, wet; strong hydrocarbon odor; increasing sand.		4,670.7
	70	30		1	C						4,669.7
				1							4,668.7
											4,667.7
											4,666.7

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- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-3-MW-U-92-HF
(Monitoring Well)




JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-3-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base	WELL COMPLETION DETAIL	ELEVATION (FEET)	
	% GRAVEL	% SAND	% FINES						JMM Boring No.: T-870-3-MW-U-92-HF			
35		10	90	400	2			CL	LITHOLOGIC LOG		4,655.7	
		70	30		3	C			As above (continued).			
36					4						4,654.7	
	T.D. 36.5'											
37											4,653.7	
38											4,652.7	
39											4,651.7	
40											4,650.7	
41											4,649.7	
42											4,648.7	
43											4,647.7	
44											4,646.7	



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* C California Split Spoon Sampler (2.5" I.D.)
 S Standard penetration test sampler
 c Cuttings
 ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-3-MW-U-92-HF
(Monitoring Well)

PAGE 5 OF 5

DEPTH (FEET)	Project: Hill Air Force Base Date Drilled: 5-26-92 Date Completed: 5-26-92 Logged By: Bob Glascott										JMM Boring No.: T-870-4-MW-U-92-HF Northing: 283,798.05 Easting: 1,862,446.70										ELEVATION (FEET)
	Drilling Contractor: Layne Environmental Drilling Method: Hollow Stem Auger										Ground Surface Elevation (ft.): 4,682.56 Measuring Point (MP) Elevation (ft.): 4,682.13 MP is Top of PVC Casing Datum: NGVD (1929)										
	Borehole: Total Depth (ft.) <u>26.5</u> Diameter (in.) <u>13</u> Well Screen: Diameter (in. I.D.) <u>6</u> Depth (ft.) <u>26.5-16.5</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u> Blank Casing: Diameter (in. I.D.) <u>6</u> Length (ft.) <u>16.5-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>26.5-14.5</u> Bentonite Seal (ft.) <u>14.5-12.5</u> Cement Grout Seal (ft.) <u>12.5-0</u> Depth to Water from MP (ft) <u>23.65</u> Date Measured <u>5-27-92</u>																				
	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG										WELL COMPLETION DETAIL		
	% GRAVEL	% SAND	% FINES																		
0								SM	7.5 inches concrete. Silty sand, dark grayish brown (10YR3/3), gravel to 1 inch in diameter, subangular to subrounded, medium to fine sand, medium dense, moist.										MP 4,682.1		
1	20	60	20	0.2	7	C													13" Borehole		
					11														4,681.1		
					12														6" Schedule 40 PVC Casing		
2																			4,680.1		
																			Cement-Bentonite Grout Seal		
3																			4,679.1		
4																			4,678.1		

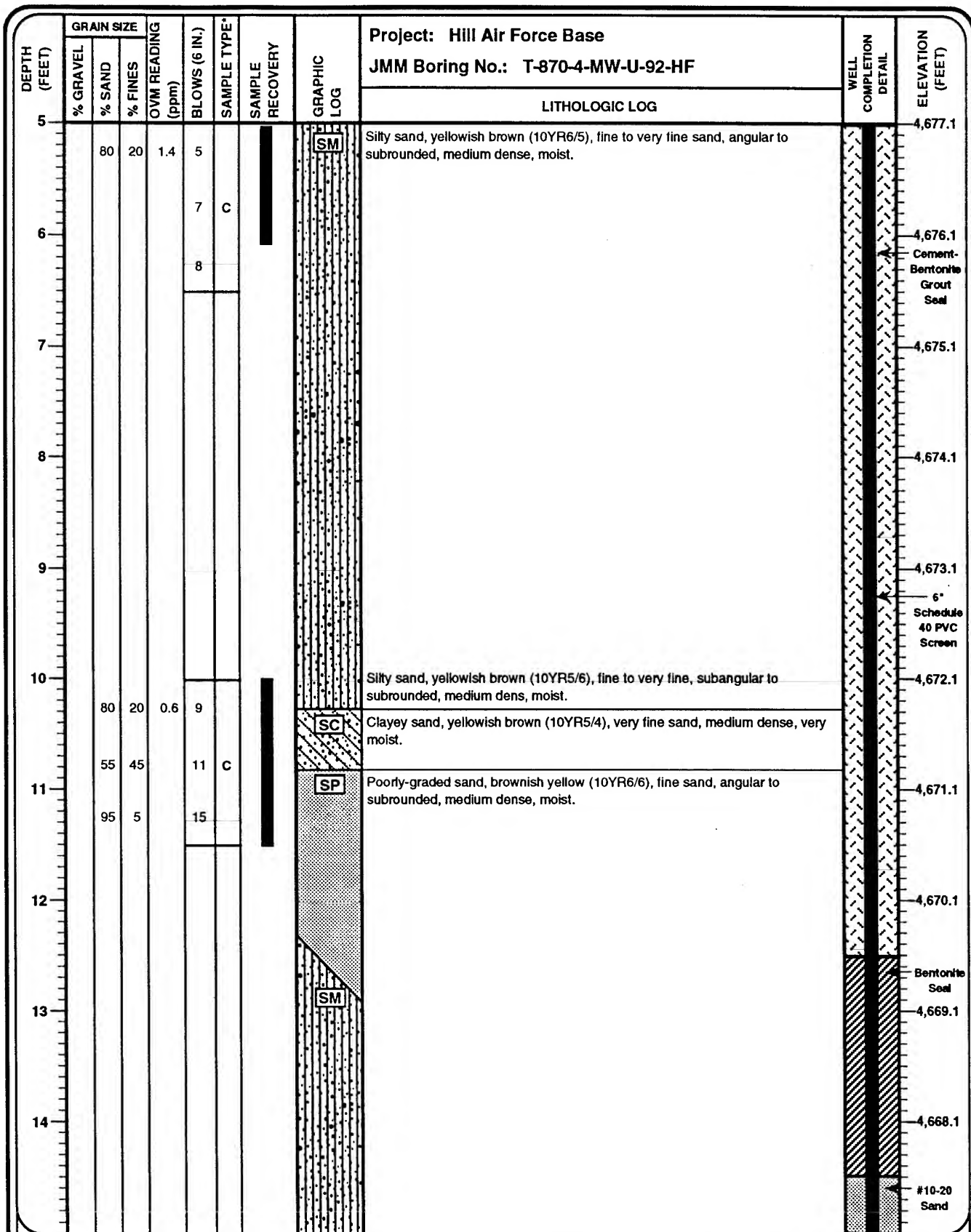
JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-4-MW-U-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402



JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-4-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
15		75	25	>1000	5			SM/SC	Silty sand, dark yellowish brown (10YR4/4), fine to very fine sand, angular to subrounded, medium dense, moist; interbedded with sandy silt layers, show iron staining.		4,667.1
16		60	40		7	C			As above except dark gray (10YR4/1), strong hydrocarbon odor and staining present.		4,666.1
17		75	25								4,665.1
18		60	40								4,664.1
19											4,663.1
20		75	25	>1000	1				Silty sand, yellowish brown (10YR5/4), very fine sand, loose, wet; interbedded with clayey sand, grayish brown (10YR5/2), very fine sand, loose, wet; strong hydrocarbon odor and staining present.		4,662.1
21		80	20		1	C					4,661.1
22		60	40		1						4,660.1
23											4,659.1
24								SC/SM			4,658.1

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-4-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-4-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
25		55	45	4.5	4			SC/SM	LITHOLOGIC LOG Clayey sand, brown (7.5YR5/4), very fine sand, medium dense, moist; interbedded with silty sand, brown (10YR5/3), fine to very fine sand, subangular to subrounded, medium dense, moist.		4,657.1
26		80	20		5	C					
					6						0.010" Slot Size
27	T.D. 26.5'										4,655.1
28											4,654.1
29											4,653.1
30											4,652.1
31											4,651.1
32											4,650.1
33											4,649.1
34											4,648.1

JMM James M. Montgomery

* C California Split Spoon Sampler (2.5" I.D.)
 S Standard penetration test sampler
 c Cuttings
 ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-4-MW-U-92-HF
(Monitoring Well)

PAGE 4 OF 4

DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-5-MW-U-92-HF Northing: 283,813.49 Easting: 1,862,536.47										ELEVATION (FEET)
	Date Drilled: 6-17-92 Date Completed: 6-17-92 Logged By: Bob Glascott										Ground Surface Elevation (ft.): 4,687.17 Measuring Point (MP) Elevation (ft.): 4,686.76 MP is Top of PVC Casing Datum: NGVD (1929)										
	Drilling Contractor: Layne Environmental Drilling Method: Hollow Stem Auger																				

Borehole: Total Depth (ft.) <u>31.5</u> Diameter (in.) <u>10</u>									
Well Screen: Diameter (in. I.D.) <u>4</u> Depth (ft.) <u>27.5-17.5</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u>									
Blank Casing: Diameter (in. I.D.) <u>4</u> Length (ft.) <u>17.5-0</u> Type <u>PVC Schedule 40</u>									
Interval: Sand (ft.) <u>31.5-15</u> Bentonite Seal (ft.) <u>15-10</u> Cement Grout Seal (ft.) <u>10-0</u>									
Depth to Water from MP (ft.) <u>21.47</u> Date Measured <u>7-2-92</u>									

GRAIN SIZE					BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL
% GRAVEL	% SAND	% FINES	OVM READING (ppm)							
0								Concrete.		MP 4,687.2
1	50	30	20	1.5	7	C	GM	Fill—silty sandy gravels, dark brown (10YR4/3), gravel to 1/2 inch in diameter, angular to subrounded, medium to fine sand, angular to subrounded, medium dense, moist.	4,686.2	10" Borehole
2		70	30		8		SM	Silty sand, dark brown (10YR4/3), medium to fine sand, angular to subrounded, medium dense, slightly moist; no hydrocarbon odor.	4,685.2	4" Schedule 40 PVC Casing
3				0.7	2				4,685.2	Cement-Bentonite Grout Seal
4							SP	Color change to yellowish brown (10YR5/6).	4,684.2	



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- *C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-5-MW-U-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402

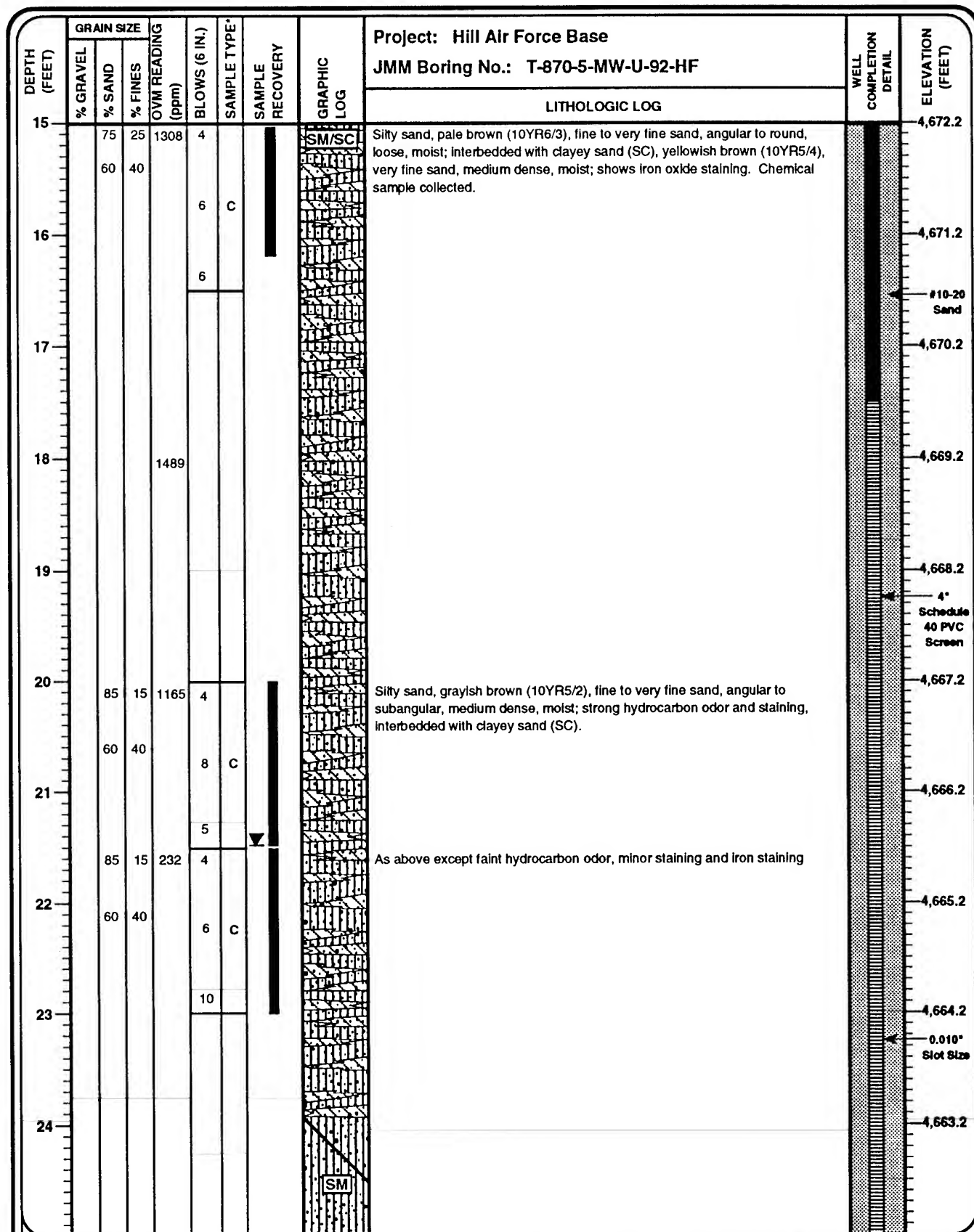
DEPTH (FEET)	GRAIN SIZE				OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES									
5		95	5	1.1		6			[SP]	Poorly graded sand, yellowish brown (10YR5/6), medium to fine sand, angular to subrounded, medium dense, slightly moist.		4,682.2
6						8	C					4,681.2
7						7						4,680.2
8					1.5				[SM]	Poorly graded sand, yellowish brown (10YR5/4), medium to fine sand, angular to subrounded, medium dense, slightly moist; interbedded with small silty beads.		4,679.2
9												4,678.2
10	90	10	1.1		9							4,677.2
11					15	C						4,676.2
12					4.7							4,675.2
13												4,674.2
14												4,673.2

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-5-MW-U-92-HF
(Monitoring Well)



JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-5-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-6-MW-U-92-HF Northing: 283,794.35 Easting: 1,862,389.06										ELEVATION (FEET)
	Date Drilled: 6-17-92 Date Completed: 6-18-92 Logged By: Bob Glascott										Ground Surface Elevation (ft.): 4,679.34 Measuring Point (MP) Elevation (ft.): 4,679.03 MP is Top of PVC Casing Datum: NGVD (1929)										
	Drilling Contractor: Layne Environmental Drilling Method: Hollow Stem Auger																				
	Borehole: Total Depth (ft.) <u>31.5</u> Diameter (in.) <u>10</u> Well Screen: Diameter (in. I.D.) <u>4</u> Depth (ft.) <u>30-20</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u> Blank Casing: Diameter (in. I.D.) <u>4</u> Length (ft.) <u>20-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>31.5-17</u> Bentonite Seal (ft.) <u>17-12</u> Cement Grout Seal (ft.) <u>12-0</u> Depth to Water from MP (ft.) <u>21.60</u> Date Measured <u>7-2-92</u>																				
	GRAIN SIZE			OWM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG										WELL COMPLETION DETAIL		
	% GRAVEL	% SAND	% FINES																		
0									Concrete.											MP 4,679.3	
								GM	Fill—silty sandy gravel, dark yellowish brown (10YR4/4), gravel to 1/2 inch in diameter, subangular, medium to very fine sand, angular to subrounded, medium dense, slightly moist.											10" Borehole	
1	50	30	20	2.7	5			SM	Silty sand, brownish yellow (10YR6/6), fine to very fine sand, angular to subrounded, medium dense, slightly moist, no hydrocarbon odor.											4,678.3	
		80	20		9	C														4" Schedule 40 PVC Casing	
					11															Cement-Bentonite Grout Seal	
2																				4,677.3	
																				4,676.3	
3																				4,675.3	
4																					








JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-6-MW-U-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402

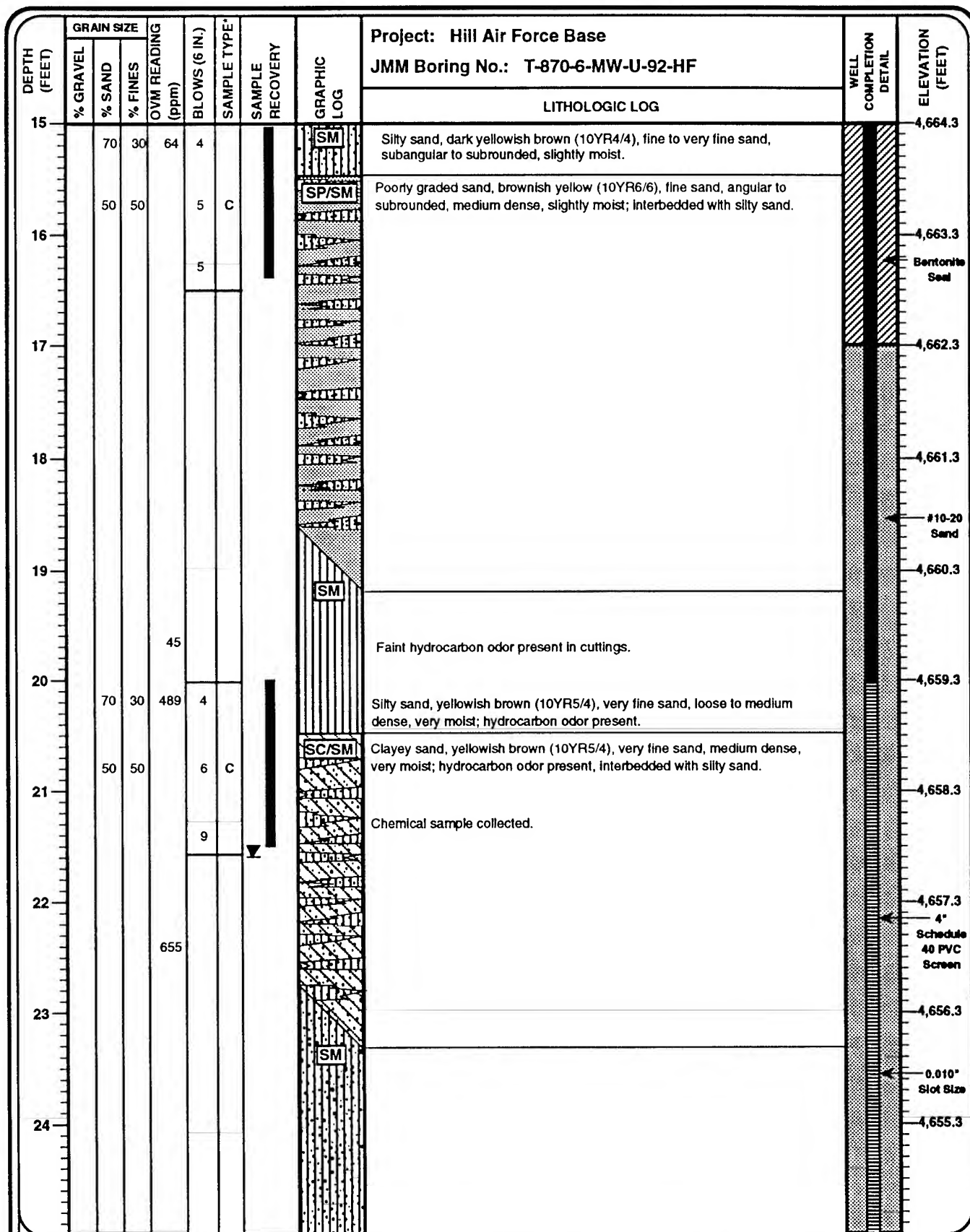
DEPTH (FEET)	GRAIN SIZE				BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-6-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES	OVM READING (ppm)					LITHOLOGIC LOG		
5		80	20	1.1	4				Silty sand (continued), color change to yellowish brown (10YR5/4) with minor iron oxide staining.		4,674.3
6					6	C			Poorly graded sand, brownish yellow (10YR6/6), fine sand, angular to subrounded, medium dense, slightly moist.		4,673.3
		95	5		6					Cement-Bentonite Grout Seal	
7											4,672.3
8											4,671.3
9											4,670.3
										Schedule 40 PVC Casing	
10		70	30	0.7	8				Silty sand, dark yellowish brown (10YR4/4), fine to very fine sand, angular to subrounded, medium dense, moist; iron oxide staining present.		4,669.3
		95	5		11	C			Poorly graded sand, brownish yellow (10YR6/6), fine sand, angular to subrounded, medium dense, slightly moist.		4,668.3
11					14				Silty sand, dark yellowish brown (10YR4/4), fine to very fine sand, angular to subrounded, medium dense, moist; iron oxide staining present.		4,667.3
									Poorly graded sand, brownish yellow (10YR6/6), fine sand, angular to subrounded, medium dense, slightly moist.		4,667.3
12										Bentonite Seal	
13											4,666.3
14											4,665.3

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-6-MW-U-92-HF
(Monitoring Well)



JMM James M. Montgomery




- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-6-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE				BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-6-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES	OVM READING (ppm)					LITHOLOGIC LOG		
25		70	30	38	1			[SM]	Silty sand, yellowish brown (10YR5/4), very fine sand, loose to medium dense, very moist; faint hydrocarbon odor, iron staining present.		4,654.3
26		30	70		2	C		[SC/SM]	Sandy clay, yellowish brown (10YR5/4), very fine sand, low plasticity; iron oxide staining present, faint hydrocarbon odor, interbedded with silty sand.		4,653.3
					5						
27											4,652.3
								[SM]			4,651.3
28				2.4							4,650.3
29											4,649.3
30		70	30	0	1				Silty sand, yellowish brown (10YR5/4), fine to very fine sand, angular to subrounded, loose, wet.		4,648.3
					2	C			Geotechnical sample collected.		4,647.3
31					7						4,646.3
											4,645.3
32											
33											
34											

T.D. 31.5'



JMM James M. Montgomery

*C California Split Spoon Sampler (2.5" I.D.)
S Standard penetration test sampler
c Cuttings
▼ Elevation of ground water

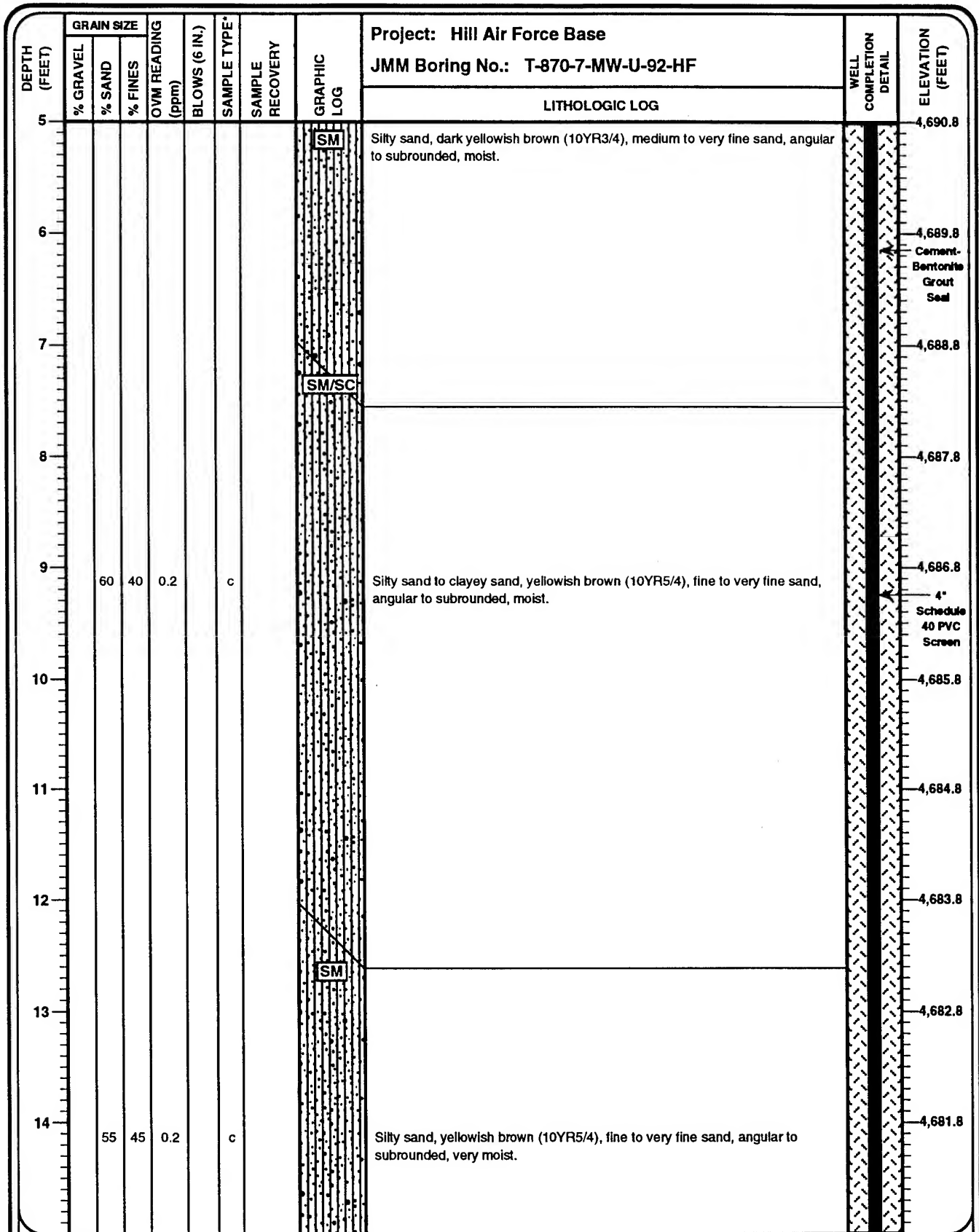
HILL AIR FORCE BASE
T-870-6-MW-U-92-HF
(Monitoring Well)

PAGE 4 OF 4

DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-7-MW-U-92-HF										ELEVATION (FEET)
	Date Drilled: 6-29-92 Date Completed: 6-30-92										Northing: 283,900.79 Easting: 1,862,621.27										
	Logged By: Bob Glascott										Ground Surface Elevation (ft.): 4,691.85										
	Drilling Contractor: Layne Environmental										Measuring Point (MP) Elevation (ft.): 4,693.80										
Drilling Method: Hollow Stem Auger										MP is Top of PVC Casing Datum: NGVD (1929)											
Borehole: Total Depth (ft.) <u>38.0</u> Diameter (in.) <u>10</u>										Well Screen: Diameter (in. I.D.) <u>4</u> Depth (ft.) <u>38-28</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u>											
Blank Casing: Diameter (in. I.D.) <u>4</u> Length (ft.) <u>28-0</u> Type <u>PVC Schedule 40</u>										Interval: Sand (ft.) <u>38-26</u> Bentonite Seal (ft.) <u>26-21</u> Cement Grout Seal (ft.) <u>21-0</u>											
Depth to Water from MP (ft.) <u>31.29</u> Date Measured <u>7-2-92</u>																					

GRAIN SIZE	% GRAVEL	% SAND	% FINES	OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG		WELL COMPLETION DETAIL
								GP	Fill—gravel 1/2 inch to 2 1/2 inches in diameter, subrounded, moist.		MP 4,693.8
								SM	Silty sand, dark yellowish brown (10YR3/4), medium to very fine sand, angular to subrounded, moist.		10" Borehole 4,692.8
				0.0							4" Schedule 40 PVC Casing 4,691.8
											Cement-Bentonite Grout Seal 4,692.8
											4,691.8
											4,691.8
									As above.		4,691.8

JMM James M. Montgomery 	* C California Split Spoon Sampler (2.5" I.D.) S Standard penetration test sampler c Cuttings Elevation of ground water	BORING NO. T-870-7-MW-U-92-HF
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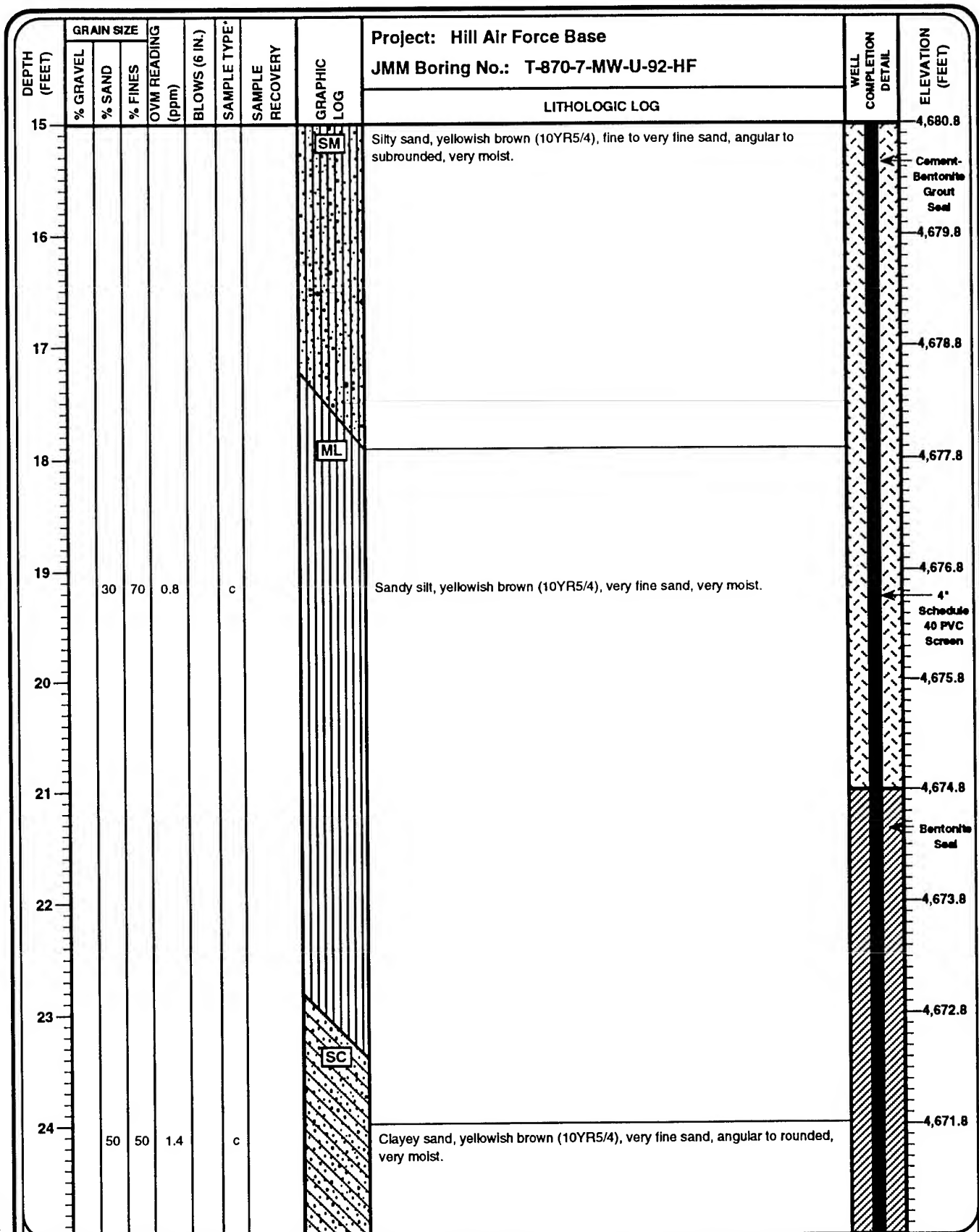


JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

BORING NO.
T-870-7-MW-U-92-HF

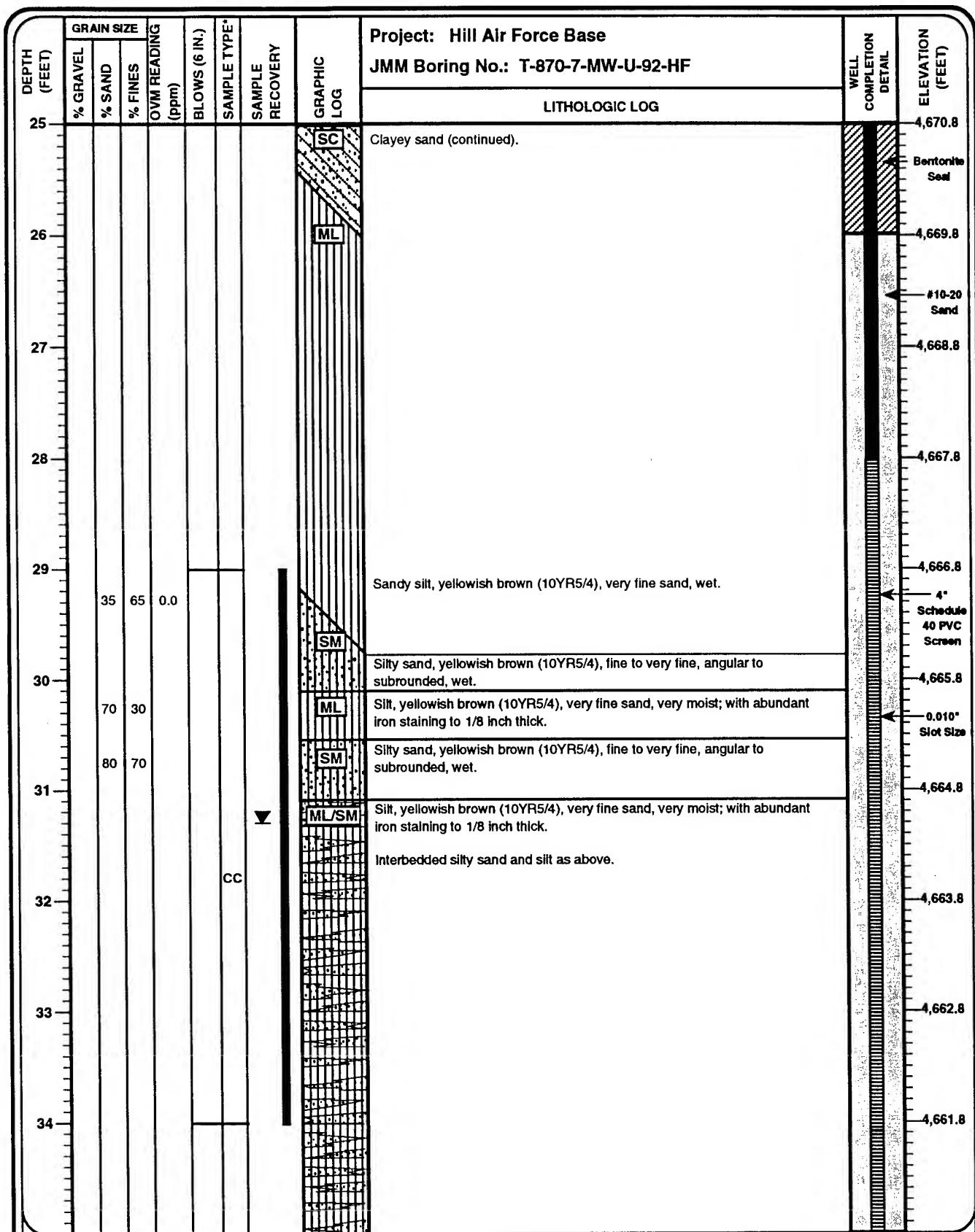


JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

BORING NO.
T-870-3-MW-U-92-HF



JMM James M. Montgomery



- *C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- CC Five foot continuous core sampler
- ▼

BORING NO.
T-870-7-MW-U-92-HF

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-7-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG		
35								ML/SM	As above, Interbedded SM and ML.		4,660.8
36											4,659.8
37											4,658.8
38											4,657.8
39											4,656.8
40											4,655.8
41											4,654.8
42											4,653.8
43											4,652.8
44											4,651.8

T.D. 38.0'

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

BORING NO.
T-870-7-MW-U-92-HF

DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-8-MW-92-HF Northing: 283,893.96 Easting: 1,862,449.70										ELEVATION (FEET)
	Date Drilled: 6-18-92 Date Completed: 6-18-92 Logged By: Bob Glascott										Ground Surface Elevation (ft.): 4,686.66 Measuring Point (MP) Elevation (ft.): 4,688.02 MP is Top of PVC Casing Datum: NGVD (1929)										
	Drilling Contractor: Layne Environmental Drilling Method: Hollow Stem Auger																				
	Borehole: Total Depth (ft.) <u>31.5</u> Diameter (in.) <u>6</u> Well Screen: Diameter (in. I.D.) <u>2</u> Depth (ft.) <u>30-20</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.020 Inch hack saw slits</u> Blank Casing: Diameter (in. I.D.) <u>2</u> Length (ft.) <u>20-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>31.5-17</u> Bentonite Seal (ft.) <u>17-12</u> Cement Grout Seal (ft.) <u>12-0</u> Depth to Water from MP (ft.) <u>26.68</u> Date Measured <u>7-2-92</u>																				

DEPTH (FEET)	GRAIN SIZE				BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL
	% GRAVEL	% SAND	% FINES	OVM READING (ppm)						
0	50	30	20	1.1	9			GM	Silty sand, dark yellowish brown (10YR4/4), gravel to 1 inch in diameter, angular to subrounded, medium to very fine sand, angular to subrounded, medium dense, slightly moist.	MP 4,688 6" Borehole
1					12	C		SM		4,687
2	30	50	20		18				Silty gravelly sand, dark brown (10YR3/3), gravel to 1.2 inch in diameter, subrounded, medium to very fine sand, angular to subrounded, medium dense to dense, moist.	2" Schedule 40 PVC Casing 4,686 Cement-Bentonite Grout Seal
3								SP		4,685
4				1.6						4,684

JMM James M. Montgomery	* C California Split Spoon Sampler (2.5" I.D.) S Standard penetration test sampler c Cuttings Elevation of ground water	HILL AIR FORCE BASE T-870-8-MW-92-HF (Monitoring Well)
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DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-8-MW-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG		
5		95	5	8.2	5			SP	Poorly graded sand, light yellowish brown (10YR6/4), fine sand, angular to subrounded, medium dense, moist.		4,683
6					6	C					4,682
					5					Cement-Bentonite Grout Seal	
7				3.0							4,681
8											4,680
9											4,679
								SM	Silty sand, yellowish brown, (10YR5/4), fine to very fine sand, angular to subrounded, medium dense, moist.	2" Schedule 40 PVC Screen	
10	95	5	752	5					Poorly graded sand, brown (10YR5/1), very fine sand, medium dense, moist; hydrocarbon odor.		4,678
	50	50		7	C			SC	Clayey sand, yellowish brown (10YR5/4), fine to very fine sand, angular to subrounded, medium dense, slightly moist.		
11	75	25		8				SM	Silty sand, brown (10YR5/3), fine to very fine, angular to subrounded, medium dense, moist, strong hydrocarbon odor.		4,677
									Chemical sample collected.		
12											4,676
13				170							4,675
14											4,674

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-8-MW-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-8-MW-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG		
15		75	25	483	4			SM	Silty sand, grayish brown (10YR5/2), strong hydrocarbon odor and staining present.		4,673
16		50	50		6	C		SC/SM	Sandy clay, grayish brown (10YR5/2), very fine sand, medium dense, moist; strong hydrocarbon odor and staining, interbedded with silty sand.	Cement-Bentonite Grout Seal	4,672
					10					Bentonite Seal	4,671
17											4,670
18				554					Cuttings have a strong weathered hydrocarbon odor.		4,669
19											4,668
20	65	35	137		1			SM	Silty sand, brown (10YR5/3), fine to very fine sand, angular to subrounded, loose, wet; strong hydrocarbon odor, weathered.		4,668
21	50	50			1	C		SC	Clayey sand, yellowish brown (10YR5/4), very fine sand, medium dense, very moist; hydrocarbon odor present.		4,667
	65	35			3			SM/SC	Silty sand, brown (10YR5/3), fine to very fine sand, angular to subrounded, loose, wet; strong weathered hydrocarbon odor, iron mottling present, interbedded clayey sand and silty sands.	2" Schedule 40 PVC Screen	4,666
22											4,665
23											4,664
24											

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-8-MW-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-8-MW-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG		
25	70	30	89	2				<div>SM</div> <div>CL</div>	As above except faint hydrocarbon odor.		4,663
26	20	80		4	C				Sandy clay, yellowish brown (10YR5/4), very fine sand, low plasticity, loose, very moist to wet; faint hydrocarbon odor.		4,662
				5							
27											4,661
28											4,660
29											4,659
30	80	20	13.9	2				<div>SM</div>	Silty sand, brown (10YR5/3), less, fines, fine to very fine sand, angular to subrounded, loose, wet; faint hydrocarbon odor.		4,658
	20	80		5	C			<div>CL</div>	Sandy clay, yellowish brown (10YR5/4), very fine sand, low plasticity, loose, very moist to wet; faint hydrocarbon odor.		4,657
31				8				<div>SM</div>	Silty sand, brown (10YR5/3), less, fines, fine to very fine sand, angular to subrounded, loose, wet; faint hydrocarbon odor.		4,656
											4,655
											4,654

T.D. 31.5'

JMM James M. Montgomery

* C California Split Spoon Sampler (2.5" I.D.)
 S Standard penetration test sampler
 c Cuttings
 Elevation of ground water

HILL AIR FORCE BASE
T-870-8-MW-92-HF
(Monitoring Well)

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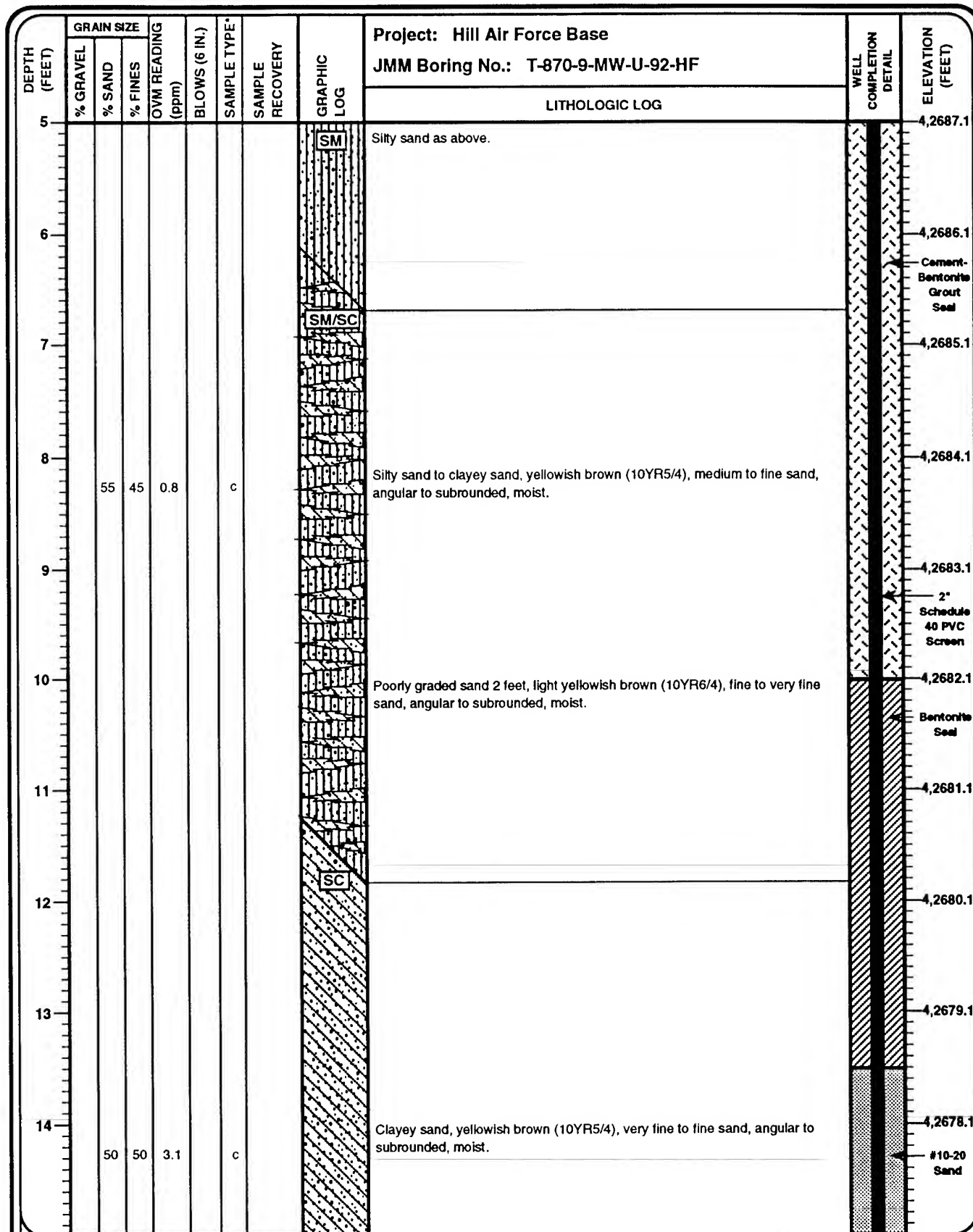
DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-9-MW-U-92-HF Northing: 283,930.05 Easting: 1,862,529.21										ELEVATION (FEET)				
	Date Drilled: 6-16-92 Date Completed: 6-16-92 Logged By: Bob Glascott										Ground Surface Elevation (ft.): 4,2689.68 Measuring Point (MP) Elevation (ft.): 4,2692.09 MP is Top of PVC Casing Datum: NGVD (1929)														
	Borehole: Total Depth (ft.) <u>35</u> Diameter (in.) <u>6</u>																								
	Well Screen: Diameter (in. I.D.) <u>2</u> Depth (ft.) <u>35-15</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.020 inch hack saw</u> Blank Casing: Diameter (in. I.D.) <u>2</u> Length (ft.) <u>15-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>35-13.5</u> Bentonite Seal (ft.) <u>13.5-10</u> Cement Grout Seal (ft.) <u>10-0</u> Depth to Water from MP (ft.) <u>29.28</u> Date Measured <u>7-2-92</u>																								
GRAIN SIZE										LITHOLOGIC LOG										WELL COMPLETION DETAIL					
% GRAVEL		% SAND		% FINES		OVM READING (ppm)		BLOWS (6 IN.)		SAMPLE TYPE*		SAMPLE RECOVERY		GRAPHIC LOG											
0		50		30		20				c				GM		<p>Silty sandy gravel, yellowish brown (10YR4/3), gravel to 1/2 inch in diameter, angular, medium to fine sand, angular to rounded, moist.</p>									
1														SM											
2																<p>Silty sand, dark yellowish brown (10YR4/4), medium to fine sand, angular to subrounded, moist.</p>									
3																									
4										c						<p>70 30 3.9</p>									

JMM James M. Montgomery

* C California Split Spoon Sampler (2.5" I.D.)
 S Standard penetration test sampler
 c Cuttings
 ▼ Elevation of ground water

BORING NO.
T-870-9-MW-U-92-HF

PAGE 1 OF 4



JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▲ Elevation of ground water

BORING NO.
T-870-9-MW-U-92-HF

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-9-MW-U-92-HF		WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG			
15								SC	Clayey sand as above.			4,2677.1
16												4,2676.1
17									Chemical sample collected.			4,2675.1
18		65	35	252				SM	Silty sand, yellowish brown (10YR5/4), medium to fine sand, angular to subrounded, moist; hydrocarbon odor present.			4,2674.1
19		50	50	920				SC	Clayey sand, yellowish brown (10YR5/4), hydrocarbon odor present.			4,2673.1
20												4,2672.1
21												4,2671.1
22												4,2670.1
23												4,2669.1
24		40	60	263		c		CL	Sandy clay, yellowish brown (10YR5/4), very fine to fine sand, angular to subrounded, very moist; hydrocarbon odor present.			4,2668.1

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

BORING NO.
T-870-9-MW-U-92-HF

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-9-MW-U-92-HF		WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG			
25								CL	As above.			4,2667.1
26												4,2666.1
27				142		c					#10-20 Sand	4,2665.1
28												4,2664.1
29	40	60	174			c			As above.		2" Schedule 40 PVC Screen	4,2663.1
30											0.020" Slot Size	4,2662.1
31												4,2661.1
32								SC/CL				4,2660.1
33												4,2659.1
34	50	50	287			c			Clayey sand to sandy clay, yellowish brown (10YR5/4), very fine to fine sand, angular to subrounded, very moist to wet, faint hydrocarbon odor.			4,2658.1
									T.D. 35.0'			

JMM James M. Montgomery



- * c California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

BORING NO.
T-870-9-MW-U-92-HF

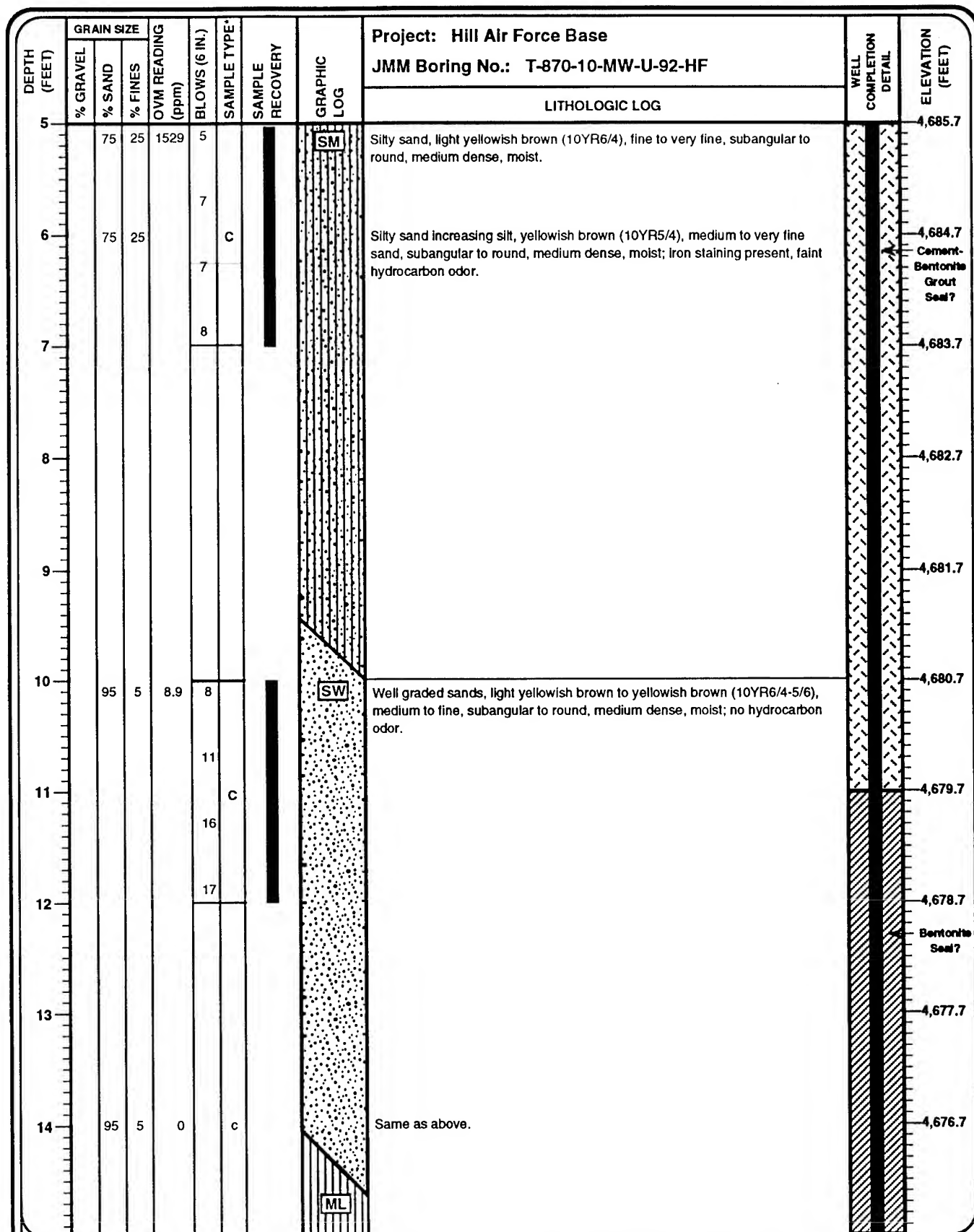
DEPTH (FEET)	Project: Hill Air Force Base										JMM Boring No.: T-870-10-MW-U-92-HF										ELEVATION (FEET)
	Date Drilled: 9-2-92 Date Completed: 9-2-92										Northing: Easting:										
	Logged By: Bob Glascott										Ground Surface Elevation (ft.):										
	Drilling Contractor: Layne Environmental										Measuring Point (MP) Elevation (ft.):										
Drilling Method: Mobile Drill B-80										MP is Top of PVC Casing Datum: NGVD (1929)											
Borehole: Total Depth (ft.) <u>45</u> Diameter (in.) <u>10.5</u>										Well Screen: Diameter (in. I.D.) <u>6</u> Depth (ft.) <u>45-24.5</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u>											
Blank Casing: Diameter (in. I.D.) <u>6</u> Length (ft.) <u>24.5-0</u> Type <u>PVC Schedule 40</u>										Interval: Sand (ft.) <u>45.5-23.0</u> Bentonite Seal (ft.) <u>23-17</u> Cement Grout Seal (ft.) <u>17-0</u>											
Depth to Water from MP (ft.) <u>28.83</u>										Date Measured <u>9/14/92</u>											

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
0								GM	Asphalt 3".		4,690.7
50						c		GM	3" road base fill.		4,689.7
1								SM			4,688.7
2						c			Silty sand, yellowish brown (10YR5/4), medium to fine sand, subangular to round, medium dense, moist.		4,687.7
3											4,686.7
4											4,685.7

JMM James M. Montgomery

* C California Split Spoon Sampler (2.5" I.D.)
S Standard penetration test sampler
c Cuttings
▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-10-MW-U-92-HF
(Monitoring Well)



JMM James M. Montgomery



- * c California Split Spoon Sampler (2.5" I.D.)
- s Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-10-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)	
	% GRAVEL	% SAND	% FINES									
15	40	60	0	4				ML/SM	Sandy silt, dark yellowish brown (10YR4/4), very fine sand, stiff, very moist; interbedded with silty sand, dark yellowish brown (10YR4/4) medium to very fine and, subangular to round, moist; (1/4" to 1/2" thick) iron staining present in the sands.		4,675.7	
	60	40										
16					6							4,674.7
					9	C						
17					9						4,673.7	
18											4,672.7	
19											4,671.7	
20	90	10	0	11				SP	Poorly sorted sand, light yellowish brown (10YR6/4), medium sand, angular to round, very dense, moist.		4,670.7	
					18							
21					29	C						4,669.7
22					34			SM			4,668.7	
23											4,667.7	
24											4,666.7	

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
 S Standard penetration test sampler
 c Cuttings
 ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-10-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
25		70	30	790	6			SM	Silty sand, grayish brown (10YR5/2), fine to very fine sand, subangular to subrounded, loose, wet.		4,665.7
		30	70		7			ML	Sandy silt, yellowish brown (10YR5/4), fine to very fine sand, medium dense, moist.		4,664.7
26		70	30		9	C		SM	Same as above, (silty sand), wet.		
		30	70		7			ML	Same as above, (sandy silt), moist.	#10-20 Sand	4,663.7
27											
28											4,662.7
29								SM		6" Schedule 40 PVC Screen	4,661.7
30		70	30	234	4				Silty sand, dark grayish brown (10YR4/2), medium to fine sand, subangular to round, medium, dense, wet; hydrocarbon stained, strong odor.	0.010" Slot Size	4,660.7
		20	80		6			ML/SM	Sandy silt, dark yellowish brown, (10YR4/4), fine to very fine sand, medium dense, moist; interbedded with silty sands, thicker silty sand contains water, typically 1/8" to 1/4" SM with 1/4" to 1/2" ML, faint hydrocarbon odor, iron staining present in interbedded layers.		4,659.7
31					8	C					
					10						4,658.7
32											
33											4,657.7
34											4,656.7

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-10-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
35	20	80	0	4				ML/SM	Same as above, except brown in color (10YR5/3), interbedded with silty sand, brown, medium to very fine, subangular to round, loose, wet, silty sand to 1" thick, sandy silts to 4" thick with iron staining.		4,655.7
	70	30		4							4,654.7
36				4		C					
				6							4,653.7
37											
											4,652.7
38											
											4,651.7
39											
											4,650.7
40	20	80	80.6	3					Interbedded sandy silts and silty sands. Silty sands moist to wet; sandy silts moist. Silty sands 1/4" to 1/2"; sandy silts 1/2' to 2", with iron staining.		4,649.7
	70	30		4							4,648.7
41				8							
				8							4,647.7
42											
											4,646.7
43											
											4,645.7
44											

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-10-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
45		10 80	90 20		6			ML/SM	Same as above, except dark gray (10YR4/1), interbedded with silty sand, dark gray, fine to very fine, very dense, moist to wet.		4,645.7
46					8 15 20	C			Interbedded sandy silts and silty sands. Silty sands 1/8" to 1/4" thick, sandy silts 1/2" to 4", dark color, looks organic, no hydrocarbon odor.		4,644.7
47	T.D. 45', sampled to 47'										
48											
49											
50											
51											
52											
53											
54											

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-10-MW-U-92-HF
(Monitoring Well)

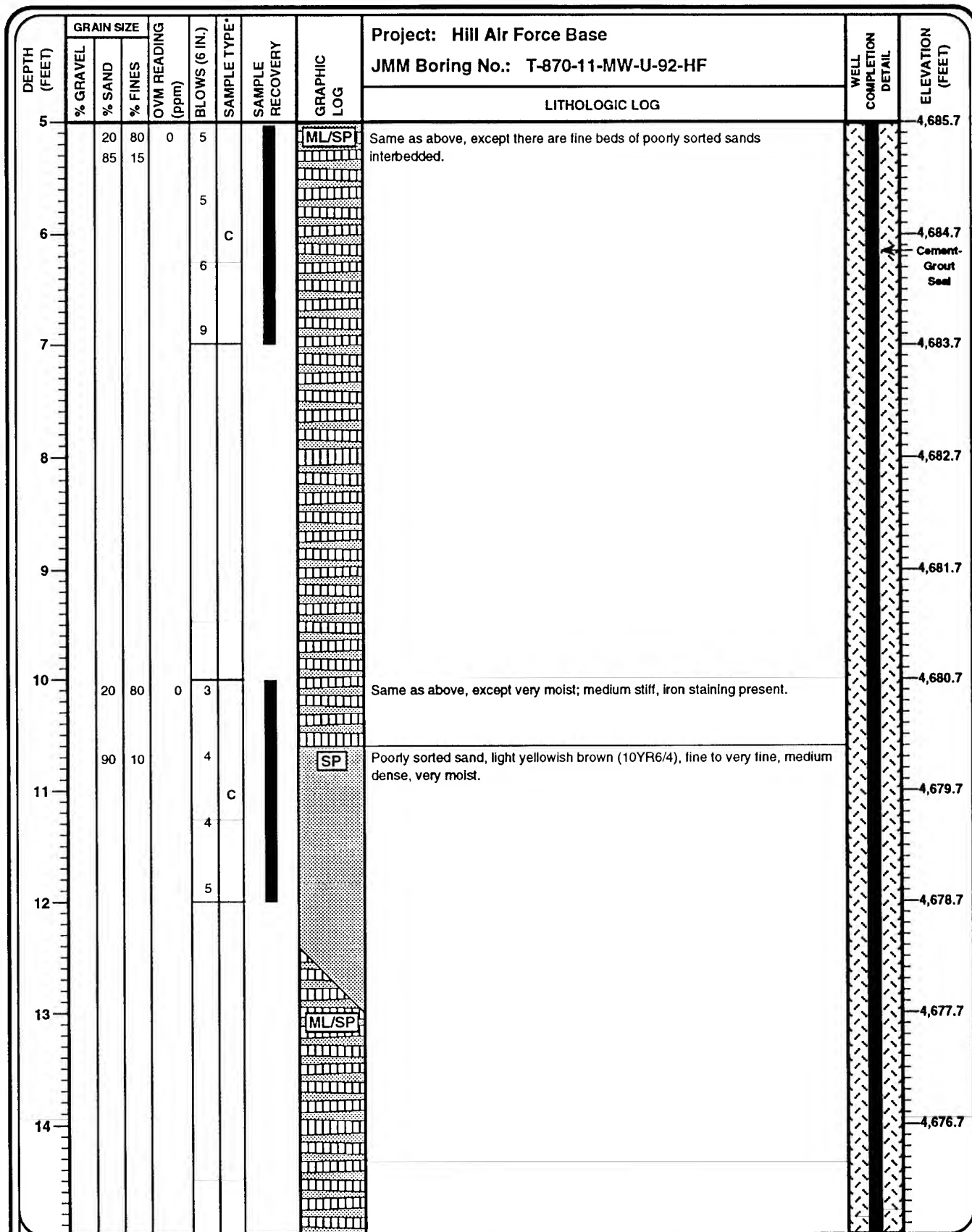
DEPTH (FEET)	Project: Hill Air Force Base Date Drilled: 9-8-92 Date Completed: 9-8-92 Logged By: Bob Glascott Drilling Contractor: Layne Environmental Drilling Method: Mobile Drill B-80										JMM Boring No.: T-870-11-MW-U-92-HF Northing: Easting: Ground Surface Elevation (ft.): Measuring Point (MP) Elevation (ft.): MP is Top of PVC Casing Datum: NGVD (1929)										ELEVATION (FEET)	
	Borehole: Total Depth (ft.) <u>50</u> Diameter (in.) <u>6 1/4</u> Well Screen: Diameter (in. I.D.) <u>4</u> Depth (ft.) <u>45.5-25</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u> Blank Casing: Diameter (in. I.D.) <u>4</u> Length (ft.) <u>25-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>45.5-23.0</u> Bentonite Seal (ft.) <u>23-18</u> Cement Grout Seal (ft.) <u>18-0</u> Depth to Water from MP (ft.) <u>25.38</u> Date Measured <u>9/14/92</u>																					
	GRAIN SIZE										LITHOLOGIC LOG											WELL COMPLETION DETAIL
	% GRAVEL	% SAND	% FINES	OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG												MP		
								Asphalt 3".												4,690.7		
								1' road base fill.												6' 1/4" Borehole		
								4"												4,689.7		
								Schedule 40 PVC Casing												4"		
								4,688.7												Cement-Bentonite Grout Seal		
								4,687.7												4,686.7		
								Sandy silt, brown (7.5YR5/3), fine to very fine sand, moist.												4,687.7		
								4,686.7												4,686.7		

James M. Montgomery

- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-11-MW-U-92-HF
(Monitoring Well)

PAGE 1 OF 6



JMM James M. Montgomery



- * c California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-11-MW-U-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
15	20	80		35	1			ML/SP	Same as above except soft, very moist; iron staining present. Interbedded with very thin poorly sorted sand, very moist to wet.		4,675.7
16					3	C					4,674.7
	95	5			5			SP	Poorly sorted sand, pale brown (10YR6/3), fine to very fine sand, angular to subrounded, medium dense, moist.		4,673.7
17					8						4,672.7
18											4,671.7
19											4,670.7
20	95	5		54.5	4				Same as above.		4,669.7
21					9	C					4,668.7
					11						4,667.7
22					14						4,666.7
23											4,665.7
24											4,664.7

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-11-MW-U-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	LITHOLOGIC LOG	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
25	95	5	18.5	6				SP	Same as above, for 7", medium dense.		4,665.7
26				13	C				Same as above, except gray (10YR6/1), hydrocarbon staining and odor.		4,664.7
27				15							4,663.7
28											4,662.7
29											4,661.7
30	95	5	>2500	5					Poorly sorted sand, gray to dark gray (10YR8/1-4/1), medium sand, angular to subround, medium dense, top 15" moist, lower 6" wet.		4,660.7
31				8	C						4,659.7
32				11							4,658.7
33				14							4,657.7
34											4,656.7

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-11-MW-U-92-HF
(Monitoring Well)

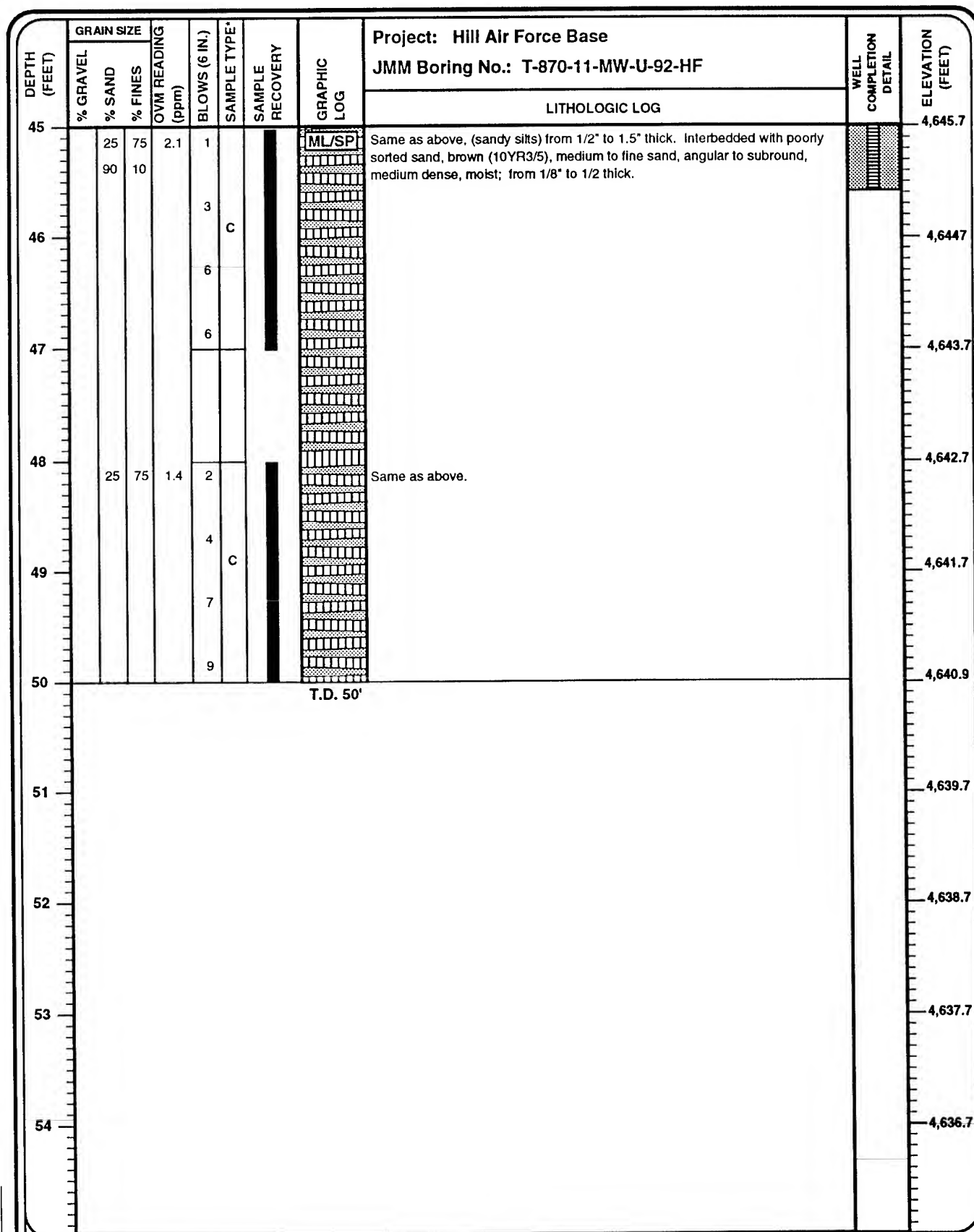
DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-11-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG		
35	95	5	436	3				SP	Same as above, except wet.		4,655.7
36	20	80		5	C			ML/SP	Sandy silt, brown to strong brown (7.5YR5/4-5/6), fine sand, stiff, moist; with iron staining. Interbedded with poorly sorted sand 1/8" to 1/4".		4,654.7
37				6							4,653.7
38				9							4,652.7
39											4,651.7
40	25	75	7.9	2				ML	Sandy silt, brown to strong brown (7.5YR5/3-5/8), fine to very fine sand, stiff, moist; no hydrocarbon odors.		4,650.7
41				4	C						4,649.7
42				8							4,648.7
43				12							4,647.7
44											4,646.7
											4,645.7

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-11-MW-U-92-HF
 (Monitoring Well)



JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-11-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	Project: Hill Air Force Base Date Drilled: 9-9-92 Date Completed: 9-9-92 Logged By: Bob Glascott Drilling Contractor: Layne Environmental Drilling Method: Mobile Drill B-80										JMM Boring No.: T-870-12-MW-U-92-HF Northing: Easting: Ground Surface Elevation (ft.): Measuring Point (MP) Elevation (ft.): MP is Top of PVC Casing Datum: NGVD (1929)										ELEVATION (FEET)	
	Borehole: Total Depth (ft.) <u>45</u> Diameter (in.) <u>8 1/4</u> Well Screen: Diameter (in. I.D.) <u>6</u> Depth (ft.) <u>45-24.5</u> Type <u>PVC Schedule 40</u> Slot Size <u>0.010 inch</u> Blank Casing: Diameter (in. I.D.) <u>6</u> Length (ft.) <u>24.5-0</u> Type <u>PVC Schedule 40</u> Interval: Sand (ft.) <u>45-23</u> Bentonite Seal (ft.) <u>23-17</u> Cement Grout Seal (ft.) <u>17-0</u> Depth to Water from MP (ft.) <u>25.38</u> Date Measured <u>9/29/92</u>																					
	GRAIN SIZE										LITHOLOGIC LOG											WELL COMPLETION DETAIL
	% GRAVEL	% SAND	% FINES	OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG														
0	60	40	0		CC		SM	Grass, silty sand, very dark grayish brown (10YR3/4), medium to very fine sand, angular to subrounded, medium dense, moist.										4,690.7				
1	40	60	4.3				ML	Sandy silt, light yellowish brown to dark brown (10YR6/4-6/6), fine to very fine sand, medium stiff, moist.										4,689.7				
2																		4,688.7				
3																		4,687.7				
4							SP											4,686.7				

James M. Montgomery

* C California Split Spoon Sampler (2.5" I.D.)
 CC Continuous Corer
 c Cuttings
 ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-12-MW-U-92-HF
(Monitoring Well)

PAGE 1 OF 6

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-12-MW-U-92-HF		WELL COMPLETION DETAIL	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES						LITHOLOGIC LOG			
5		95	5	0		CC		[SP]	Poorly sorted sand, light yellowish brown (10YR6/4), fine to very fine, medium dense, moist.		4,685.7	
6											4,684.7	
7				0							Cement-Grout Seal	4,683.7
8												4,682.7
9												4,681.7
10		95	5	0		CC		[SP]	Poorly sorted sand, light yellowish brown (106/4-6/6), fine to very fine, medium dense, moist.		4,680.7	
11		30	70					[ML]	Sandy silt, brown (7.5YR5/3), fine to very fine sand, medium stiff, moist; shows iron staining 1/16" to 1/8" thick.		4,679.7	
12		95	5					[SP/ML]	Same as above with occasional small interbedded sandy silt, as above.		4,678.7	
13												4,677.7
14				0								4,676.7

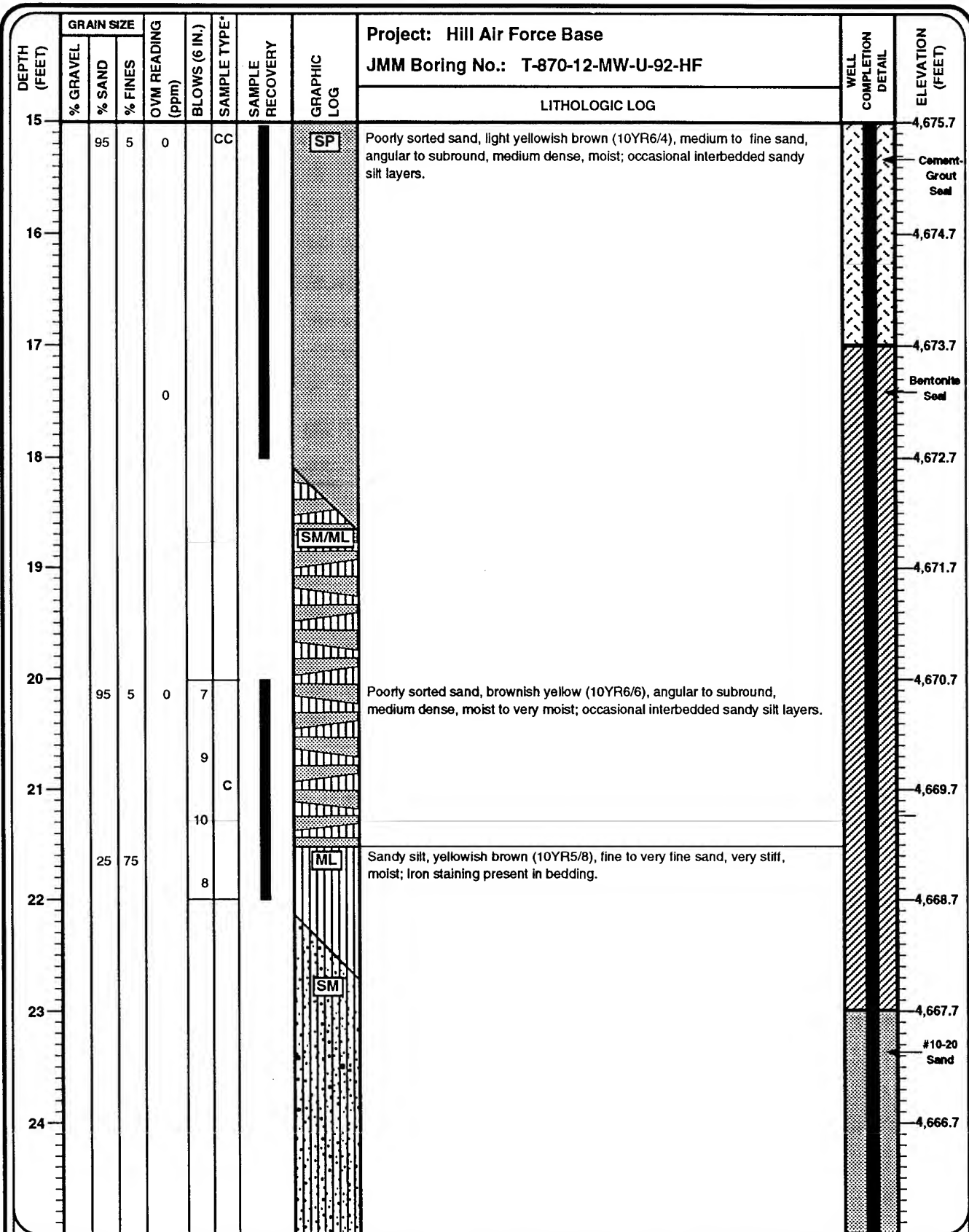
JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- CC Continuous Corer
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-12-MW-U-92-HF
(Monitoring Well)

PROJECT NO. 2208.0402

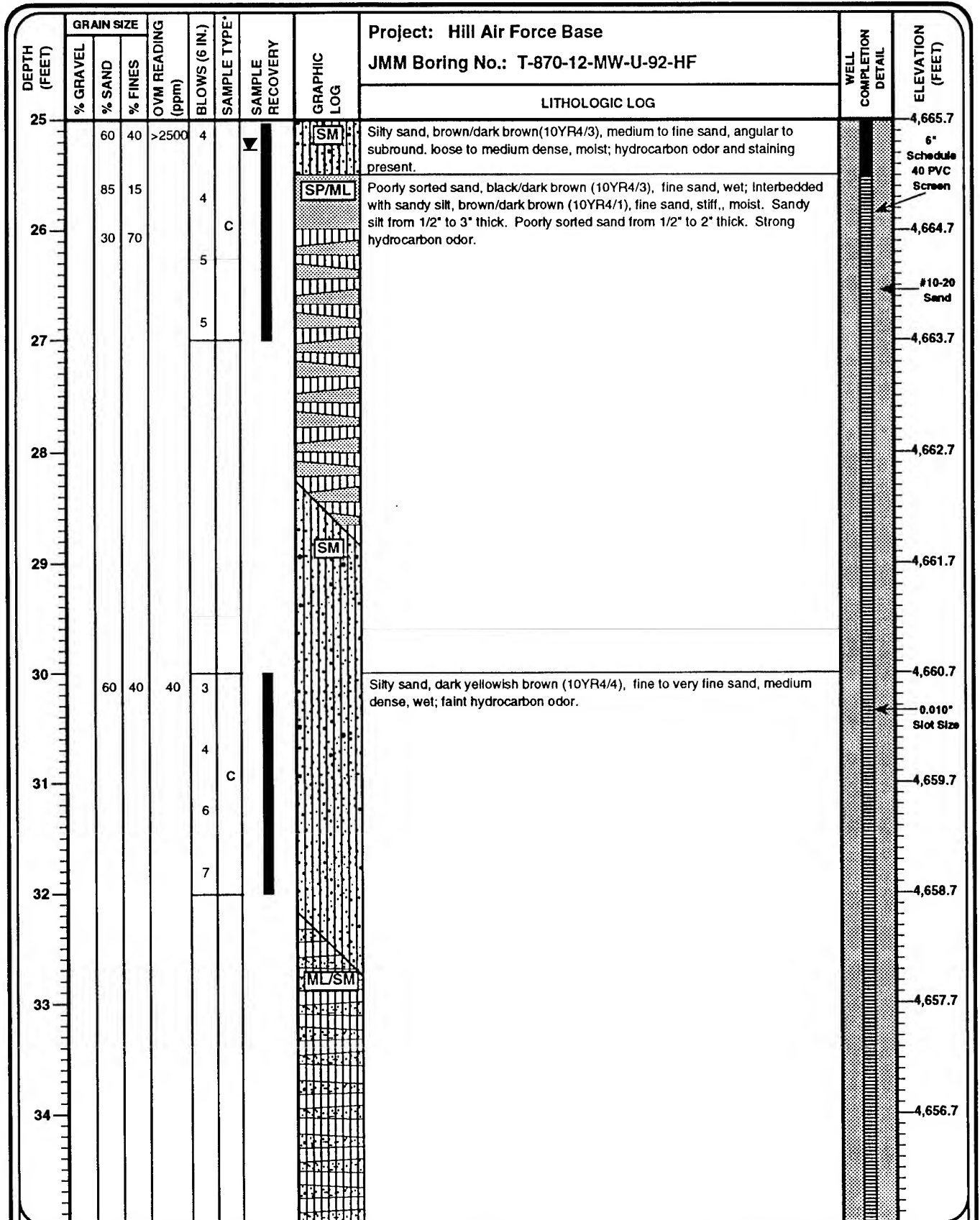


JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- CC Continuous Corer
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-12-MW-U-92-HF
(Monitoring Well)

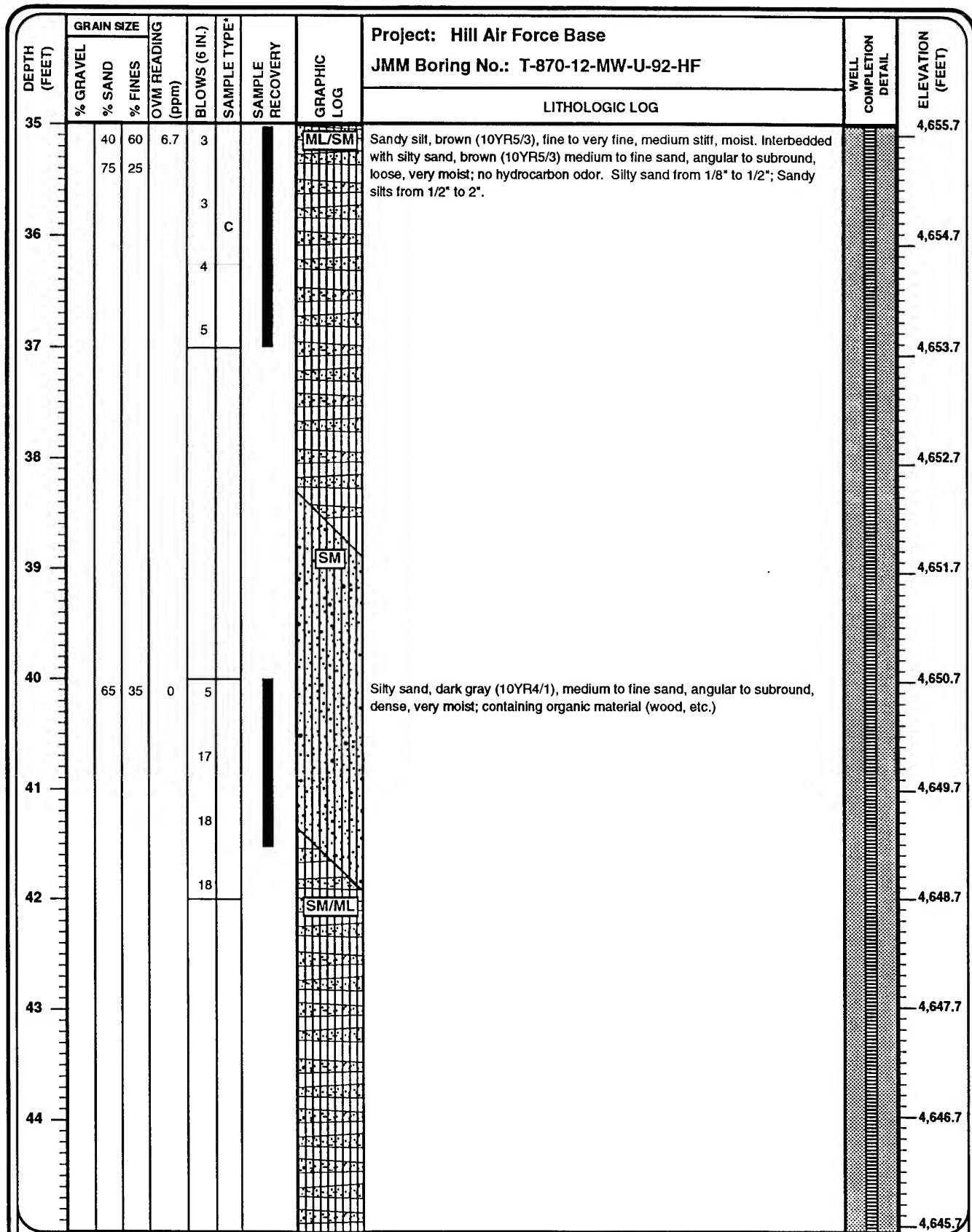


JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- CC Continuous Corer
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-12-MW-U-92-HF
(Monitoring Well)



JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- CC Continuous Corer
- c Cuttings
- ▼ Elevation of ground water

HILL AIR FORCE BASE
T-870-12-MW-U-92-HF
(Monitoring Well)

DEPTH (FEET)	GRAIN SIZE			OVM READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE	SAMPLE RECOVERY	GRAPHIC LOG	Project: Hill Air Force Base JMM Boring No.: T-870-12-MW-U-92-HF	WELL COMPLETION DETAIL	ELEVATION (FEET)	
	% GRAVEL	% SAND	% FINES									
45		65	35	0	4			SM/ML	LITHOLOGIC LOG Same as above, interbedded with sandy silt, dark gray (10YR4/1) fine to very fine sand, stiff, moist.		4,645.7	
		30	70									
46					5							4,644.7
					9							
47					9						4,643.7	
	T.D. = 45', Sampled to 47'.											
48											4,642.7	
49											4,641.7	
50											4,640.9	
51											4,639.7	
52											4,638.7	
53											4,637.7	
54											4,636.7	

JMM James M. Montgomery



- * C California Split Spoon Sampler (2.5" I.D.)
- CC Continuous Corer
- c Cuttings
- ▼ Elevation of ground water

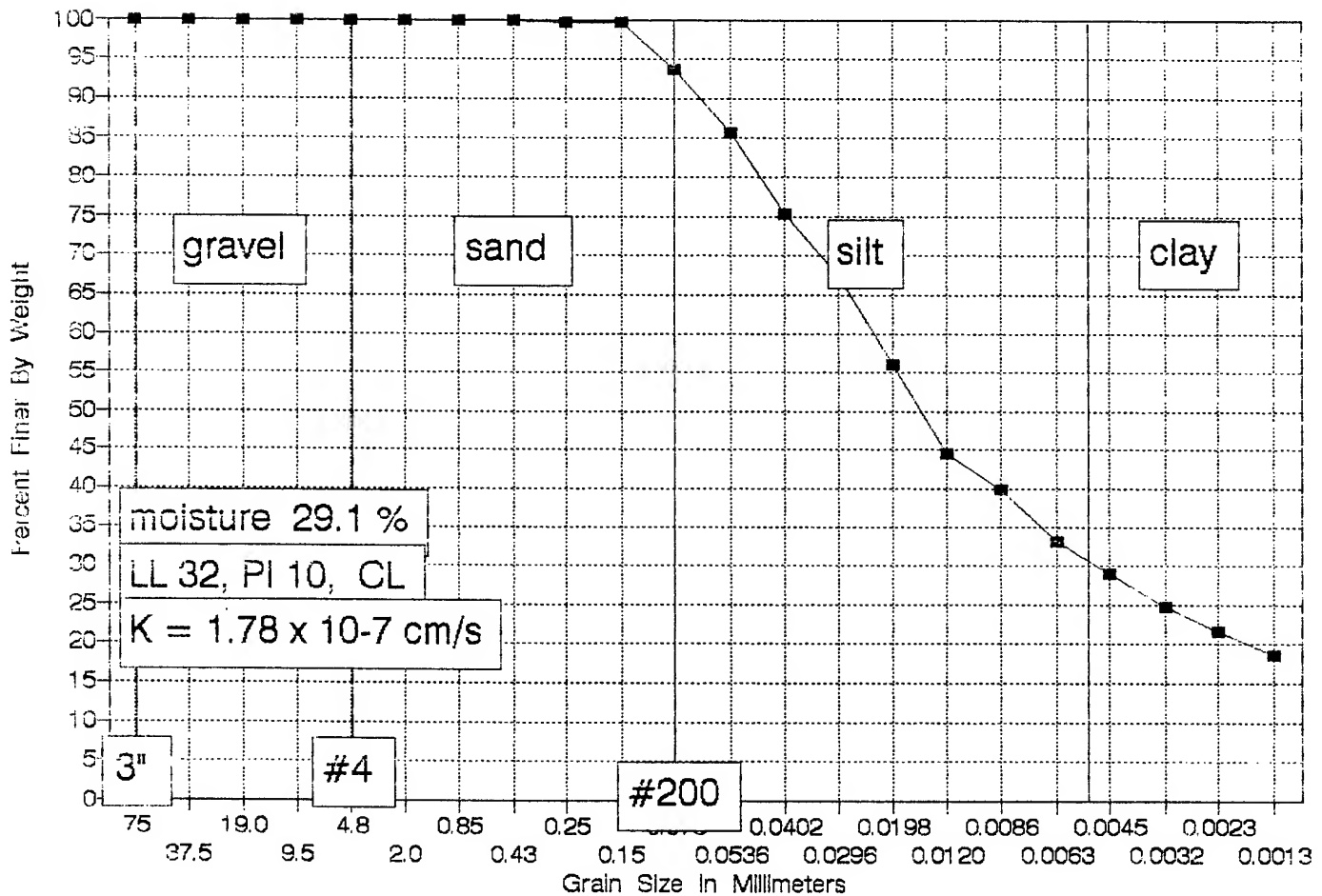
HILL AIR FORCE BASE
T-870-12-MW-U-92-HF
(Monitoring Well)

APPENDIX D

SOIL GEOTECHNICAL DATA

GRADATION CURVE

T-870-5MW-U-92, at 31 to 31.5 ft



HAFB

Dry soil & dish
Dish

327.2
109

Boring T-870-5MW-U-92
Sample at 31 to 31.5 feet

SIEVE & HYDROMETER ANALYSIS

SIEVE PORTION

Dry weight of TOTAL sample= 218.2
sample split -#10 sieve = 55.1

Sieve #	Weight Retained	Total Percent Finer
1.5 inch		100.00%
3/4 inch	0	100.00%
3/8 inch	0	100.00%
# 4	0	100.00%
# 10	0	100.00%
# 20	0	100.00%
# 40	0.04	99.93%
# 60	0.15	99.73%
# 100	0.2	99.64%
# 200	3.41	93.81%

Constants this test

Gs= 2.65 20c=.01365 21c=.01348 22c=.01332
 18c=.01399 19c=.01382

When 5 grams of Sodium

Hexametaphosphate used correction
= 6

HYDROMETER ANALYSIS

Elapsed time	Tc	R'	Zr	Particle Dia. mm	Percent Partial	Total Percent Finer
0.5	19	53.2	7.52	0.0536	85.66	85.66
1	19	47.5	8.46	0.0402	75.32	75.32
2	19	43.2	9.17	0.0296	67.51	67.51
5	19	36.9	10.21	0.0198	56.08	56.08
15	19	30.5	11.27	0.0120	44.46	44.46
30	19	27.9	11.70	0.0086	39.75	39.75
60	19	24.2	12.31	0.0063	33.03	33.03
120	19	22	12.67	0.0045	29.04	29.04
250	19	19.6	13.07	0.0032	24.68	24.68
500	21	17.9	13.35	0.0023	21.60	21.60
1444	19	16.2	13.63	0.0013	18.51	18.51

MECHANICAL ANALYSIS

SA-44

DATE 7/4/92

BY Heusch

JOB NUMBER 05461-029-6081

OWNER/CLIENT JIM MONTGOMERY

LOCATION HAEB

BORING I-870-5-MW-4-92

SAMPLE

DEPTH 31-31.5'

NUMBER OF RINGS		DISH	<u>305</u>	#10
WT. OF RINGS & WET SOIL		WT. OF DISH & WET SOIL	<u>383.9</u>	66
WT. OF RINGS		WT. OF DISH & DRY SOIL	<u>327.2</u>	
WT. OF WET SOIL		WT. OF MOISTURE		
FIELD DENSITY		WT. OF DISH	<u>109.0</u>	
DRY DENSITY		WT. OF DRY SOIL		
		FIELD MOISTURE CONTENT		

WASH SIEVE DRY SIEVE WEIGHT OF OVEN DRY SOIL (grams)

DISH NUMBER	DISH WEIGHT	SIEVE NUMBER	WEIGHT RETAINED	ACCUMULATIVE WEIGHT RETAINED	ACCUMULATIVE PERCENT	
					RETAINED	FINER
		3"				
		1-1/2"				
		3/4"				
		3/8"				
		#4				
		PAN				
		TOTAL				

DISH NUMBER	DISH WEIGHT	SIEVE NUMBER	WEIGHT RETAINED	ACCUM. WEIGHT RETAINED	ACCUMULATIVE PERCENT		
					PARTIAL		TOTAL
					RETAINED	FINER	FINER
		#10		0			
211		#20		0			
		#40		.04			
		#60		.15			
		#100		.20			
		#200		3.41			
		PAN					
		TOTAL					

Dames & Moore

HYDROMETER ANALYSIS

OWNER JIMMONTGOMERY DATE 7/5/92
 BORING NO. T-870-5-MW-11-92 JOB NO. 05461-029-6081
31-31.5'

SAMPLE SPECIMEN NO. _____ CLASSIFICATION _____
 DISH NO. 66 GRADUATE NO. 15 HYDROMETER NO. _____
 DISPERSING AGENT USED Sodium H-MPH QUANTITY 5g
 DISPERSING AGENT CORRECTION, C_D .5 MENISCUS CORRECTION, C_M .1

TIME	ELAPSED TIME	TEMP °C	HYDRO READING (R)	CORRECTED READING $R + C_M - C_D$	HEIGHT Z_R	PARTICLE DIA. (MM)	PERCENT FINER	
							PARTIAL	TOTAL
7/6 0840	0	19						
	.5		53 ²					
0841	.1		47 ⁵					
0842	.2		43 ²					
0845	5		36 ⁹					
0855	15		30 ⁵					
0910	30		27 ⁹					
0940	60	19	24 ²					
1040	120	19	22					
1250	250	19	19 ⁶					
1700	500	21	17 ⁹					
7/7 0844		19	16 ²					

WEIGHT IN GRAMS	DISH PLUS DRY SOIL		SPECIFIC GRAVITY OF SOLIDS, $G_s =$
	DISH		
	DRY SOIL	W_o	

CORRECTED HYDROMETER READING (R)

668.9 - 613.8

= HYDROMETER READING (R) + C_M

THE PARTICLE DIAMETER (D) IS CALCULATED FROM STOKES' EQUATION USING CORRECTED HYDROMETER READING. USE NOMOGRAPHIC CHART FOR SOLUTION OF STOKES' EQUATION.

HYDROMETER GRADUATED IN SPECIFIC GRAVITY W_s = TOTAL OVEN-DRY WT. OF SAMPLE USED FOR COMBINED ANALYSIS

PARTIAL PERCENT FINER = $\frac{G}{G-1} \times \frac{100}{W_o} (R - C_D + M)$ W_o = OVEN-DRY WT. IN GRAMS OF SOIL USED FOR HYDROMETER ANALYSIS

HYDROMETER GRADUATED IN GRAMS PER LITER W_1 = OVEN-DRY WT OF SAMPLE RETAINED ON NO. 200 SIEVE

PARTIAL PERCENT FINER = $\frac{100}{W_o} (R - C_D + M)$

TOTAL PERCENT FINER = PARTIAL PERCENT FINER $\times \frac{W_s - W_1}{W_s}$

REMARKS _____

TECHNICIAN J. Hensch COMPUTED BY _____ CHECKED BY edd

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. _____

CLIENT/OWNER JMM

LOCATION HAER

BORING IT SAMPLE P-25 DEPTH 31.5L

FIELD DENSITY BY _____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	_____	_____
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD _____

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	_____	_____
WT OF MOISTURE		
WT OF DISH	_____	_____
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

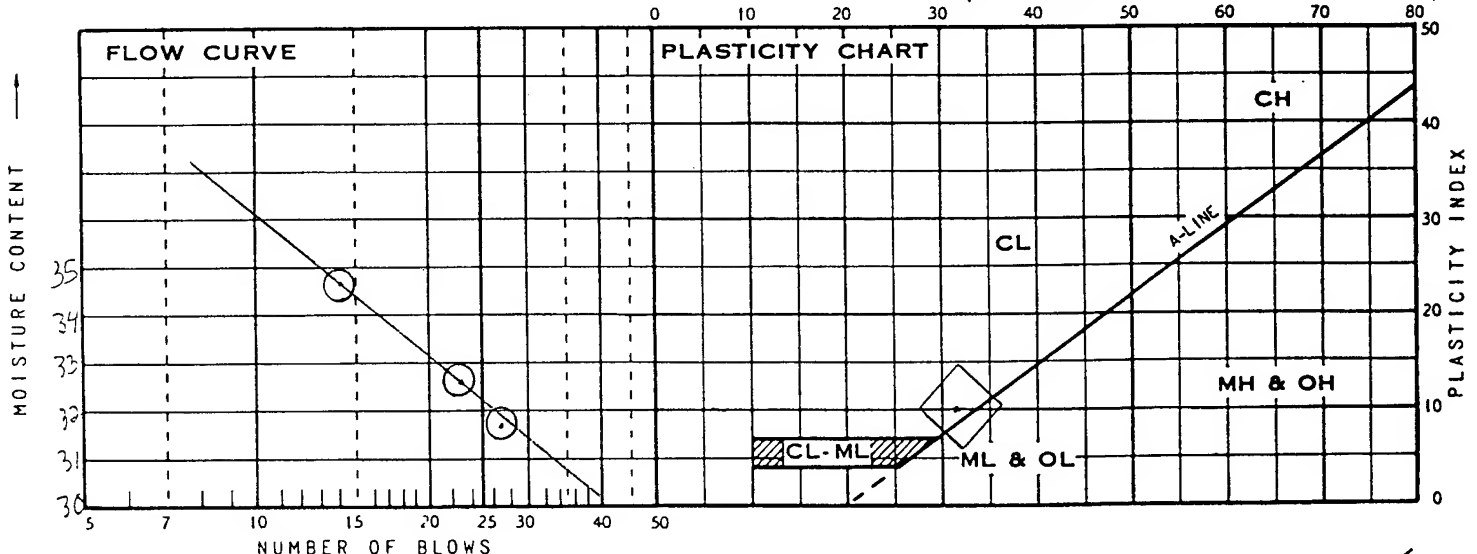
PLASTIC LIMIT BY PC. 6.15/22

DETERMINATION	1	2	3	4	5	6
DISH	<u>133</u>	<u>18</u>				
WT OF DISH + WET SOIL	<u>16.62</u>	<u>16.99</u>				
WT OF DISH + DRY SOIL	<u>13.91</u>	<u>14.22</u>	_____	_____	_____	_____
WT OF MOISTURE						
WT OF DISH	<u>1.4</u>	<u>1.4</u>	_____	_____	_____	_____
WT OF DRY SOIL						
MOISTURE CONTENT	<u>21.66</u>	<u>21.61</u>	<u>AV=22</u>			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	<u>183</u>	<u>180</u>	<u>19</u>			
NUMBER OF BLOWS	<u>27</u>	<u>23</u>	<u>14</u>			
WT OF DISH + WET SOIL	<u>14.99</u>	<u>13.00</u>	<u>14.94</u>			
WT OF DISH + DRY SOIL	<u>11.72</u>	<u>10.15</u>	<u>11.46</u>	_____	_____	_____
WT OF MOISTURE						
WT OF DISH	<u>1.4</u>	<u>1.4</u>	<u>1.4</u>	_____	_____	_____
WT OF DRY SOIL						
MOISTURE CONTENT	<u>31.69</u>	<u>32.57</u>	<u>34.59</u>			

LIQUID LIMIT



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION
		<u>32</u>	<u>22</u>	<u>10</u>	<u>CL</u>

Dames & Moore

JOB NO. 5461-029-4081

BORING NO. T-870.5-MW-12-92

DATE 6/26/97.

DEPTH 31.0-31.5'

TESTED DK / Mensch

SAMPLE NO.

LAB SOIL DESCRIPTION

INITIAL HEIGHT 2.0"

FINAL HEIGHT 1.785"

DENSITY	BEFORE TEST	AFTER TEST	MOISTURE	BEFORE TEST	AFTER TEST
WT. SOIL & RINGS	384.1	377.3	WT. WET SOIL & PAN		383.9
WT. RINGS	98.7	98.7	WT. DRY SOIL & PAN		327.2
WT. SOIL	285.4	278.6	WT. WATER		
WET DENSITY	118.5	129.6	WT. OF PAN NO.	#305	109.0
DRY DENSITY	91.8	102.9	WT. DRY SOIL		
MAX. DRY DENSITY			WATER CONTENT	29.1	26.0
PERCENT COMPACTION	0.445	0.378			

SETUP NO. 4

INITIAL DIAL .742

SURCHARGE 2500 DISE

FINAL DIAL. .527

H₂O: DISTILLED

$$(50.0^\circ)$$

$$K = \frac{aL}{A\Delta t} \quad \text{in} \quad \frac{h_1}{h_2}$$

[illegible]

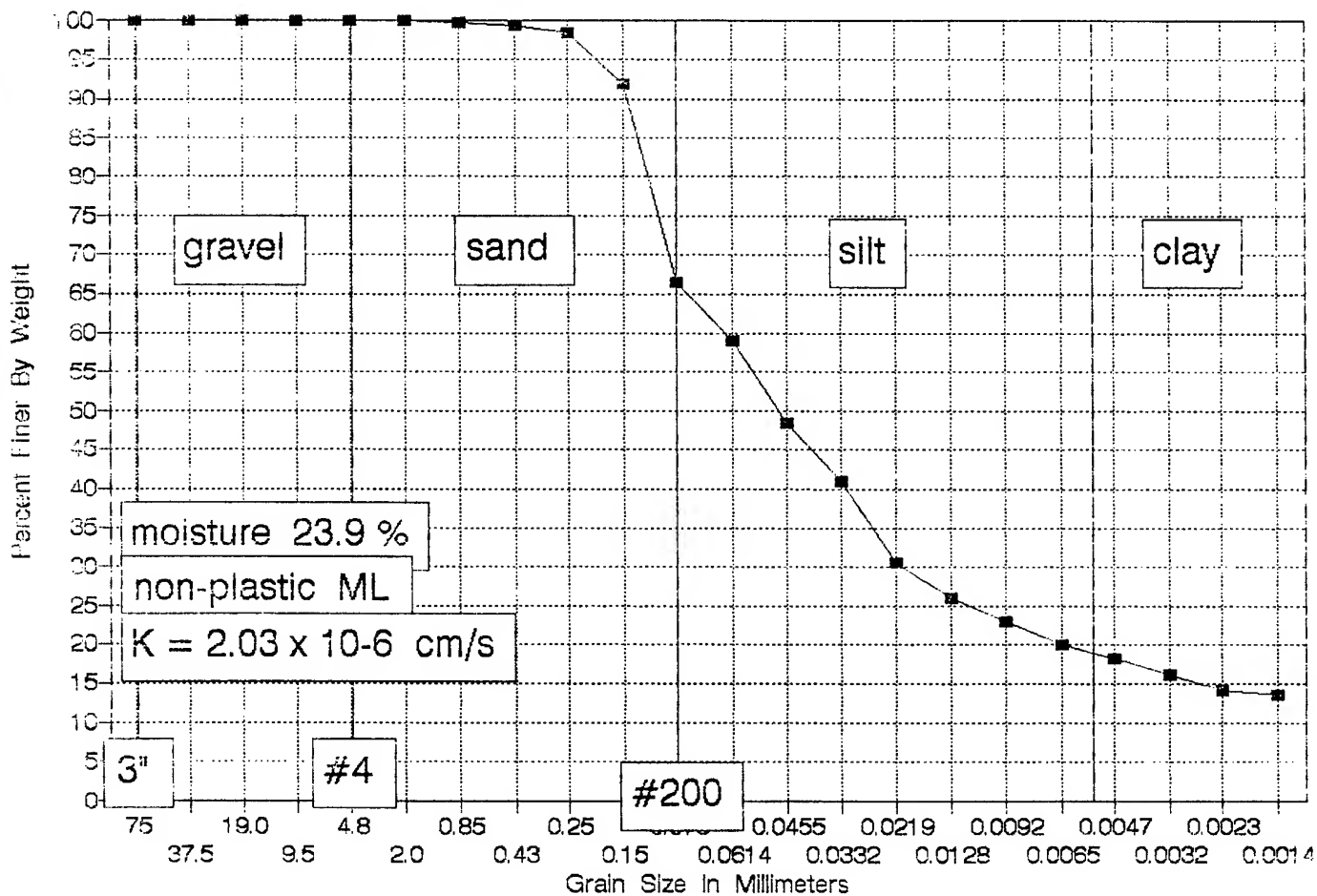
PERCOLATION TEST - FALLING HEAD

Dames & Moore

* AIR IN H₂O TUBE. RESTARTED H₂O.

GRADATION CURVE

T-870-6MW-U-92, at 30.5 to 31.0 ft



HAFB

Dry soil & dish 343.4
Dish 106.8

Boring T-870-6MW-U-92
Sample at 30.5 to 31.0 feet

SIEVE & HYDROMETER ANALYSIS

SIEVE PORTION

Dry weight of TOTAL sample= 236.6
sample split -#10 sieve = 55.8

Sieve #	Weight Retained	Total Percent Finer
1.5 inch		100.00%
3/4 inch	0	100.00%
3/8 inch	0	100.00%
# 4	0	100.00%
# 10	0	100.00%
# 20	0.14	99.75%
# 40	0.35	99.37%
# 60	0.84	98.49%
# 100	4.53	91.88%
# 200	18.73	66.43%

Constants this test

Gs= 2.65 20c=.01365 21c=.01348 22c=.01332
 18c=.01399 19c=.01382

When 5 grams of Sodium
Hexametaphosphate used correction
= 6

HYDROMETER ANALYSIS

Elapsed time	Tc	R'	Zr	Particle Dia. mm	Percent Partial	Total Percent Finer
0.5	19	39	9.87	0.0614	59.14	59.14
1	19	33	10.86	0.0455	48.39	48.39
2	19	28.9	11.53	0.0332	41.04	41.04
5	19	23	12.51	0.0219	30.47	30.47
15	19	20.5	12.92	0.0128	25.99	25.99
30	19	18.9	13.18	0.0092	23.12	23.12
60	19	17.2	13.46	0.0065	20.07	20.07
120	19	16.1	13.64	0.0047	18.10	18.10
250	19	15	13.83	0.0032	16.13	16.13
500	21	13.9	14.01	0.0023	14.16	14.16
1440	19	13.5	14.07	0.0014	13.44	13.44

MECHANICAL ANALYSIS

SA-HA

DATE 7/1/92

BY J. Hensch

JOB NUMBER 05461-029-6081

OWNER/CLIENT JMMONTBOMERY

LOCATION H.A.F.B.

BORING I-870-6-MW-U

SAMPLE

DEPTH 30.5-31.0

NUMBER OF RINGS		DISH	<u>306</u>	<u>#10</u>
WT. OF RINGS & WET SOIL		WT. OF DISH & WET SOIL	<u>394.7</u>	<u>108</u>
WT. OF RINGS		WT. OF DISH & DRY SOIL	<u>343.4</u>	
WT. OF WET SOIL		WT. OF MOISTURE		
FIELD DENSITY		WT. OF DISH	<u>106.8</u>	
DRY DENSITY		WT. OF DRY SOIL		
		FIELD MOISTURE CONTENT		

WASH SIEVE DRY SIEVE WEIGHT OF OVEN DRY SOIL (grams)

DISH NUMBER	DISH WEIGHT	SIEVE NUMBER	WEIGHT RETAINED	ACCUMULATIVE WEIGHT RETAINED	ACCUMULATIVE PERCENT	
					RETAINED	FINER
		3"				
		1-1/2"				
		3/4"				
		3/8"				
		#4				
		PAN				
		TOTAL				

DISH NUMBER	DISH WEIGHT	SIEVE NUMBER	WEIGHT RETAINED	ACCUM. WEIGHT RETAINED	ACCUMULATIVE PERCENT		
					PARTIAL		TOTAL
					RETAINED	FINER	FINER
		#10		<u>0</u>			
<u>36</u>		#20		<u>.14</u>			
		#40		<u>.35</u>			
		#60		<u>.84</u>			
		#100		<u>4.53</u>			
		#200		<u>18.73</u>			
		PAN					
		TOTAL					

HYDROMETER ANALYSIS

OWNER JIMMONTGOMERY DATE 7/5/92
 BORING NO. T-870-6-MW-U JOB NO. 05461-029-6081
30.5-31.0'

SAMPLE SPECIMEN NO.

CLASSIFICATION

DISH NO. 108GRADUATE NO. 22

HYDROMETER NO.

DISPERSING AGENT USED

Sodium H-MPH; QUANTITY 5gDISPERSING AGENT CORRECTION, C_D .5; MENISCUS CORRECTION, C_M .1

TIME	ELAPSED TIME	TEMP °C	HYDRO READING (R')	CORRECTED READING $R + C_M - C_D$	HEIGHT Z_R	PARTICLE DIA. (MM)	PERCENT FINER	
							PARTIAL	TOTAL
0845	0	19'						
	.5		39					
0846	1.		33					
0847	2.		28 ⁹					
0850	5		23					
0900	15		20 ⁵					
0915	30		18 ⁹					
0945	60	19'	17 ²					
1045	120	19'	16 ¹					
1255	250	19'	15					
1705	500	21'	13 ⁹					
0845		19'	13 ⁵					

WEIGHT IN GRAMS

DISH PLUS DRY SOIL

DISH

DRY SOIL

 W_O

SPECIFIC GRAVITY OF SOLIDS,

 $G_S =$

CORRECTED HYDROMETER READING (R)

872.1 - 616.3= HYDROMETER READING (R') + C_M

THE PARTICLE DIAMETER (D) IS CALCULATED FROM STOKES' EQUATION USING CORRECTED HYDROMETER READING. USE NOMOGRAPHIC CHART FOR SOLUTION OF STOKES' EQUATION.

HYDROMETER GRADUATED IN SPECIFIC GRAVITY W_S = TOTAL OVEN-DRY WT. OF SAMPLE USED FOR COMBINED ANALYSIS

$$\text{PARTIAL PERCENT FINER} = \frac{G_S}{G_S - 1} \times \frac{100}{W_O} (R - C_D + M)$$

W_O = OVEN-DRY WT. IN GRAMS OF SOIL USED FOR HYDROMETER ANALYSIS

HYDROMETER GRADUATED IN GRAMS PER LITER

$$\text{PARTIAL PERCENT FINER} = \frac{100}{W_O} (R - C_D + M)$$

W_1 = OVEN-DRY WT OF SAMPLE RETAINED ON NO. 200 SIEVE

$$\text{TOTAL PERCENT FINER} = \text{PARTIAL PERCENT FINER} \times \frac{W_S - W_1}{W_S}$$

REMARKS

TECHNICIAN J. M. Smith

COMPUTED BY

CHECKED BY RM

ATTIERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABOPATORY CLASSIFICATION _____

JOB NO. 2208.0313

CLIENT/OWNER JMM

LOCATION HAFB

BORING T SAMPLE 8706 DEPTH 30.5-31'

FIELD DENSITY BY _____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS		
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD _____

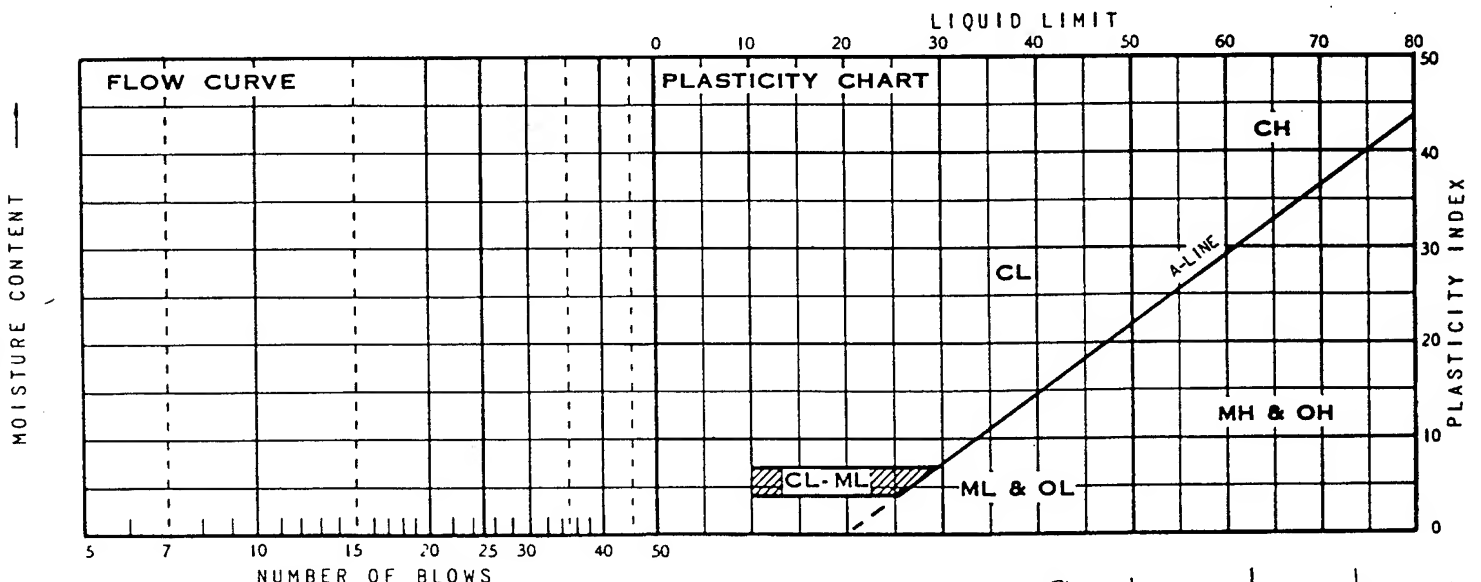
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL		
WT OF MOISTURE		
WT OF DISH		
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY BC.63092

DETERMINATION	1	2	3	4	5	6
DISH	<u>74</u>	<u>71</u>				
WT OF DISH + WET SOIL						
WT OF DISH + DRY SOIL						
WT OF MOISTURE						
WT OF DISH	<u>1.4</u>	<u>1.4</u>	<u>1.4</u>			
WT OF DRY SOIL						
MOISTURE CONTENT						

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	<u>14</u>	<u>33</u>	<u>19</u>			
NUMBER OF BLOWS						
WT OF DISH + WET SOIL						
WT OF DISH + DRY SOIL						
WT OF MOISTURE						
WT OF DISH	<u>1.4</u>	<u>1.4</u>	<u>1.4</u>			
WT OF DRY SOIL						
MOISTURE CONTENT						



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION

No Plastic Limit

JOB NO. 5461-029-6081

DATE 6/26/92

TESTED *DK Mensch*

LAB SOIL DESCRIPTION

FINAL HEIGHT 1.927

DENSITY	BEFORE TEST	AFTER TEST
WT. SOIL & RINGS	394.7	389.5
WT. RINGS	99.0	99.0
WT. SOIL	295.7	290.5
WET DENSITY	122.8	125.2
DRY DENSITY	99.2	102.9
MAX. DRY DENSITY		
PERCENT COMPACTION	0.401	0.378

<u>MOISTURE</u>	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
WT. WET SOIL & PAN		394.7
WT. DRY SOIL & PAN		343.4
WT. WATER	#306	
WT. OF PAN NO.		106.8
WT. DRY SOIL		
WATER CONTENT	23.9	21.7

SETUP NO. 22

INITIAL DIAL .682

SURCHARGE 200 D.F.

FINAL DIAL 609

H₂O: DISTILLED

50,0"

$$K = \frac{aL}{A\Delta t} \quad \text{in} \quad \frac{h_1}{h_2}$$

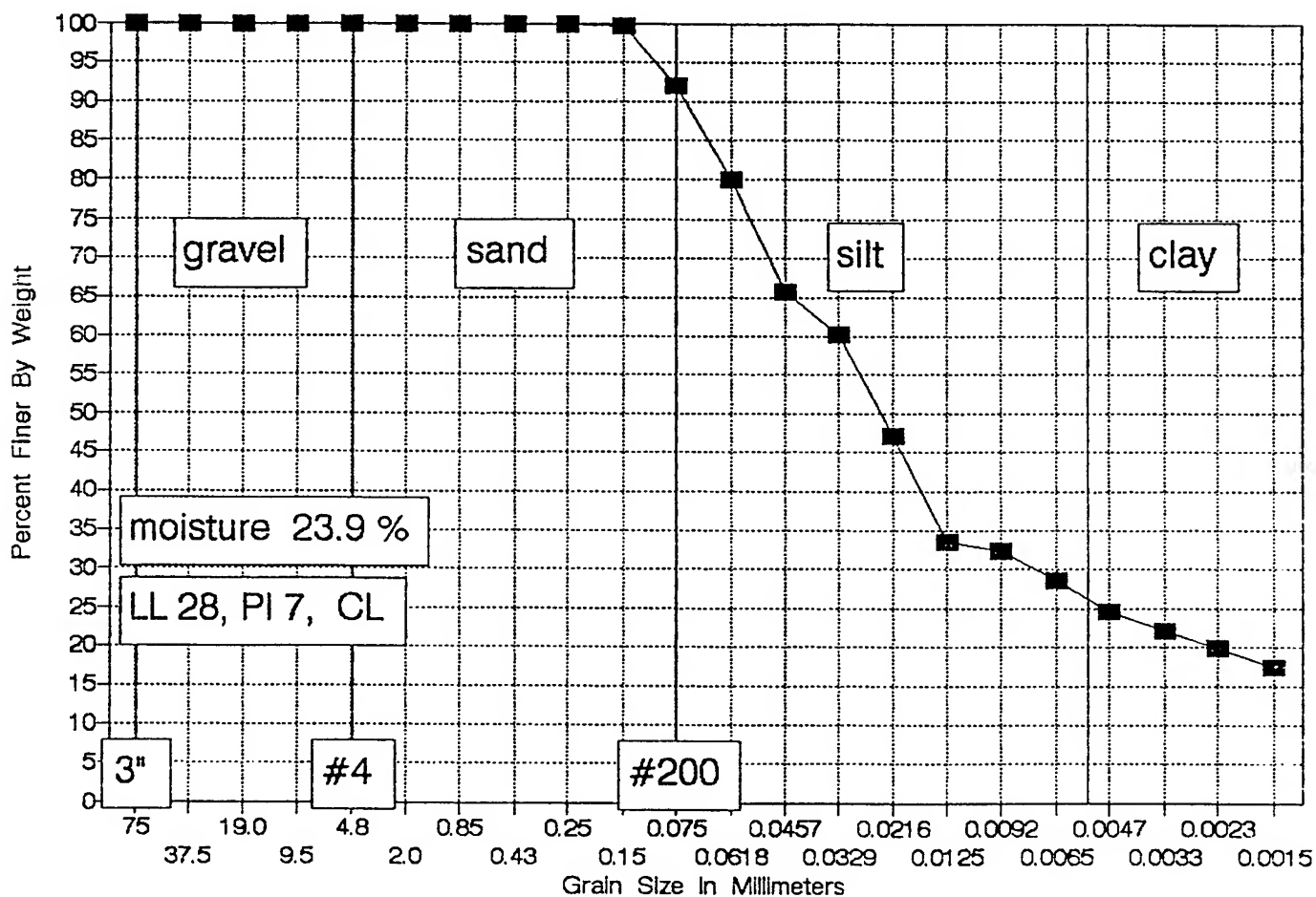
DATE	TIME	ELAPSED TIME (Δt)	DIAL	BURETTE READING h ₁ (CC)	BURETTE READING h ₂ (CC)		PERCOLATION RATE FT/YEAR	CM/SEC
6/26/92	14:10		.616	0.0				
	15:53	103	.613	14.4			2.86	$\times 10^{-6}$
6/27/92	1230	0	.611	+100ml 0.6				
	1300	30		4.0			2.26	$\times 10^{-6}$
	1454	114		15.4			2.07	$\times 10^{-6}$
	1535	41		19.3			2.04	$\times 10^{-6}$
	1655	80		26.5			1.99	$\times 10^{-6}$
	1822	87		33.7			1.89	$\times 10^{-6}$
6/30/92	1211	0	.609	+200ml 0.0				
	1218	7		0.8			2.26 $\times 10^{-6}$	2.26 $\times 10^{-6}$
	1442	144		14.0			2.07	$\times 10^{-6}$
	1914	272		34.8		AV.	1.95	$\times 10^{-6}$
7/1/92	1108	954	.609	88.6			1.85 $\times 10^{-6}$	1.56 $\times 10^{-6}$
							K _{AV.} = 2.032 $\times 10^{-6}$	

PERCOLATION TEST - FALLING HEAD

Dames & Moore

GRADATION CURVE

Sample SB870A-01 at 25.5 to 26.0 feet



JOB NO. 05461-029-6081
DATE 11/11/91
TESTED BY Mensch
LAB. SOIL DESCRIPTION _____
FINAL HEIGHT 1.870"

<u>MOISTURE</u>	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
WT. WET SOIL & PAN		<u>393.0</u>
WT. DRY SOIL & PAN		<u>338.4</u>
WT. WATER		
WT. OF PAN NO.	<u># 210</u>	<u>109.6</u>
WT. DRY SOIL		
WATER CONTENT	<u>27.0</u>	<u>23.9</u>

INITIAL DIAL .624 $K = \frac{aL}{A\Delta t} \ln \frac{h_1}{h_2}$
 FINAL DIAL .494
 C = 2593.03 PER RING C = 5186.06 FOR 2 RINGS
 (50.0°)

[illegible]

PERCOLATION TEST - FALLING HEAD

DAMES & MOORE

JM Montgomery

Wt soil and dish 393
Dry soil & dish 338.4
Dish 109.6

Sample SB870A-01 at 25.5 to 26 feet
Moisture Content = 23.9

SIEVE & HYDROMETER ANALYSIS

SIEVE PORTION

Dry weight of TOTAL sample= 228.8
sample split -#10 sieve = 40.27

Sieve #	Weight Retained	Total Percent Finer
1.5 inch		100.00%
3/4 inch	0	100.00%
3/8 inch	0	100.00%
# 4	0	100.00%
# 10	0	100.00%
# 20	0	100.00%
# 40	0.01	99.98%
# 60	0.03	99.93%
# 100	0.08	99.80%
# 200	3.17	92.13%

Constants this test

Gs= 2.65 20c=.01365 21c=.01348 22c=.01332
18c=.01399 19c=.01382

When 5 grams of Sodium
Hexametaphosphate used correction
= 6

HYDROMETER ANALYSIS

Elapsed time	Tc	R'	Zr	Particle Dia. mm	Percent Partial	Total Percent Finer
0.5	21	38.2	10.00	0.0618	79.96	79.96
1	21	32.5	10.94	0.0457	65.81	65.81
2	21	30.2	11.32	0.0329	60.09	60.09
5	21	25	12.18	0.0216	47.18	47.18
16	21	19.5	13.08	0.0125	33.52	33.52
30	21	19	13.17	0.0092	32.28	32.28
60	21	17.5	13.41	0.0065	28.56	28.56
120	20	15.9	13.68	0.0047	24.58	24.58
250	20	14.9	13.84	0.0033	22.10	22.10
500	20	14	13.99	0.0023	19.87	19.87
1176	19	13	14.16	0.0015	17.38	17.38

HYDROMETER ANALYSIS

DATE 11/20/91OWNER IMMONTGOMERYJOB NO. 461-029-6081BORING NO. BY70A-0175.5-26'

SAMPLE SPECIMEN NO.

CLASSIFICATION

DISH NO. 16GRADUATE NO. 11

HYDROMETER NO.

DISPERSING AGENT USED

SODIUM 11-MPH; QUANTITY 5gDISPERSING AGENT CORRECTION, C_D .5; MENISCUS CORRECTION, C_M .1

TIME	ELAPSED TIME	TEMP °C	HYDRO READING (R)	CORRECTED READING $R + C_M - C_D$	HEIGHT Z_R	PARTICLE DIA. (MM)	PERCENT FINER	
							PARTIAL	TOTAL
11/20 0932	0	21						
	.5	21	38 ²					
0933	1	21	32 ⁵					
0934	2	21	30 ²					
0937	5	21	25					
0947	15	21	19 ⁵					
1002	30	21	19					
1032	60	21	17 ⁵					
1132	120	20	15 ⁹					
1342	260	20	14 ⁹					
1752	500	20	14					
11/21 0508		19	13					

WEIGHT IN GRAMS

DISH PLUS DRY SOIL

DISH

DRY SOIL

 W_O

SPECIFIC GRAVITY OF SOLIDS,

 $G_S =$

CORRECTED HYDROMETER READING (R)

632 60 - 592.33 = HYDROMETER READING (R) + C_M

THE PARTICLE DIAMETER (D) IS CALCULATED FROM STOKES' EQUATION USING CORRECTED HYDROMETER READING. USE NOMOGRAPHIC CHART FOR SOLUTION OF STOKES' EQUATION.

HYDROMETER GRADUATED IN SPECIFIC GRAVITY

 W_S = TOTAL OVEN-DRY WT. OF SAMPLE USED FOR COMBINED ANALYSIS

$$\text{PARTIAL PERCENT FINER} = \frac{G}{G-1} \times \frac{100}{W_O} (R - C_D + M)$$

 W_O = OVEN-DRY WT. IN GRAMS OF SOIL USED FOR HYDROMETER ANALYSIS

HYDROMETER GRADUATED IN GRAMS PER LITER

$$\text{PARTIAL PERCENT FINER} = \frac{100}{W_O} (R - C_D + M)$$

 W_1 = OVEN-DRY WT OF SAMPLE RETAINED ON NO. 200 SIEVE

$$\text{TOTAL PERCENT FINER} = \text{PARTIAL PERCENT FINER} \times \frac{W_S - W_1}{W_S}$$

REMARKS

TECHNICIAN J. Murch

COMPUTED BY

CHECKED BY ed

MECHANICAL ANALYSIS

SA-HA

DATE 11/19/91

BY J. Mersch

JOB NUMBER 9461-029-6081

OWNER/CLIENT S M MONTGOMERY

LOCATION _____

BORING SB870A-01

SAMPLE —

DEPTH 25.5-26'

NUMBER OF RINGS		DISH	210	③#10 16
WT. OF RINGS & WET SOIL		WT. OF DISH & WET SOIL	393.0	
WT. OF RINGS		WT. OF DISH & DRY SOIL	338.4	
WT. OF WET SOIL		WT. OF MOISTURE		
FIELD DENSITY		WT. OF DISH	109.6	
DRY DENSITY		WT. OF DRY SOIL		
		FIELD MOISTURE CONTENT	23.9	

WASH SIEVE _____ DRY SIEVE _____ WEIGHT OF OVEN DRY SOIL _____ (grams)

DISH NUMBER	DISH WEIGHT	SIEVE NUMBER	WEIGHT RETAINED	ACCUMULATIVE WEIGHT RETAINED	ACCUMULATIVE PERCENT	
					RETAINED	FINER
		3"				
		1-1/2"				
		3/4"				
		3/8"				
		#4				
		PAN				
		TOTAL				

DISH NUMBER	DISH WEIGHT	SIEVE NUMBER	WEIGHT RETAINED	ACCUM. WEIGHT RETAINED	ACCUMULATIVE PERCENT		
					PARTIAL		TOTAL
					RETAINED	FINER	FINER
		#10		0			
		#20		0			
		#40		.01			
		#60		.03			
		#100		.08			
		#200		3.17			
		PAN					
		TOTAL					

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION

LABORATORY CLASSIFICATION

JOB NO. 5461-029-6081

CLIENT/OWNER SMITHSONIAN INSTITUTION

LOCATION

BORINGS BY 70A SAMPLE DEPTH 35.5

01

FIELD DENSITY BY

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS		
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL		
WT OF MOISTURE		
WT OF DISH		
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

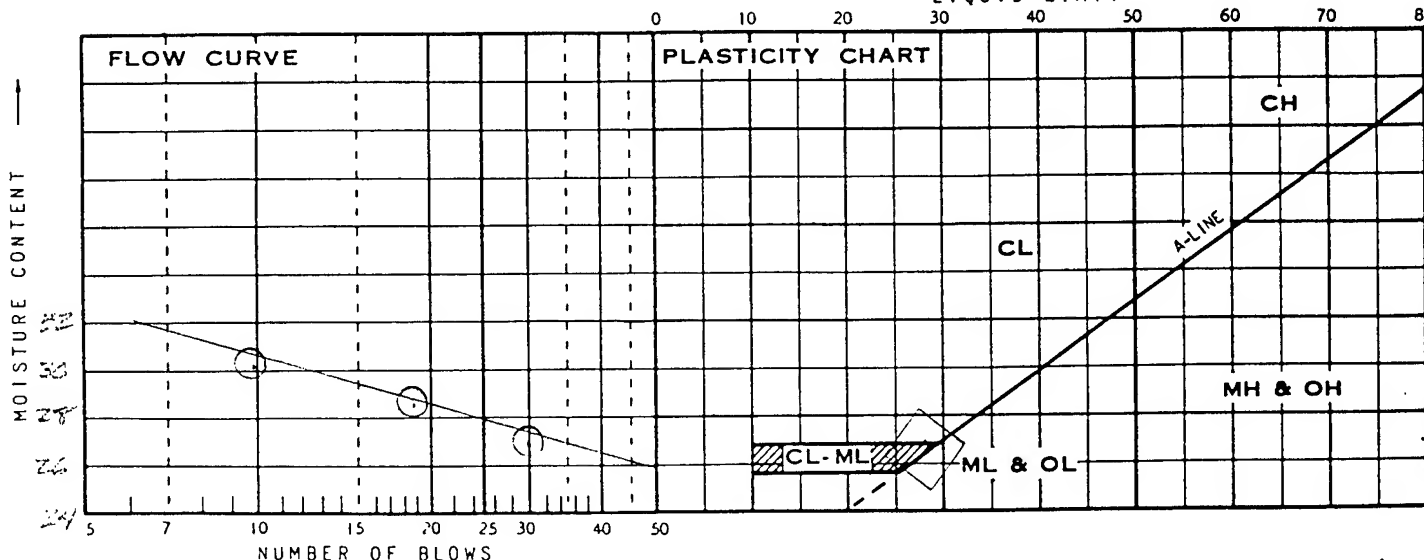
PLASTIC LIMIT BY DE 111891

DETERMINATION	1	2	3	4	5	6
DISH	<u>611</u>	<u>125</u>				
WT OF DISH + WET SOIL	<u>10.71</u>	<u>10.70</u>				
WT OF DISH + DRY SOIL	<u>9.07</u>	<u>9.07</u>				
WT OF MOISTURE						
WT OF DISH	<u>1.4</u>	<u>1.4</u>				
WT OF DRY SOIL						
MOISTURE CONTENT	<u>21.38</u>	<u>21.25</u>	<u>AV=21</u>			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	<u>AL-112</u>	<u>AL-80</u>	<u>10</u>			
NUMBER OF BLOWS	<u>30</u>	<u>19</u>	<u>10</u>			
WT OF DISH + WET SOIL	<u>10.03</u>	<u>10.22</u>	<u>13.28</u>			
WT OF DISH + DRY SOIL	<u>8.20</u>	<u>8.26</u>	<u>9.23</u>			
WT OF MOISTURE						
WT OF DISH	<u>1.4</u>	<u>1.4</u>	<u>1.4</u>			
WT OF DRY SOIL						
MOISTURE CONTENT	<u>26.91</u>	<u>24.57</u>	<u>30.81</u>			

LIQUID LIMIT



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION
		<u>21</u>	<u>7</u>	<u>7</u>	<u>CL</u>

Dames & Moore

JOB NO. 05461-029-6081
DATE 11/11/91
TESTED BY Smersch
LAB. SOIL DESCRIPTION _____
FINAL HEIGHT 1.967"

<u>MOISTURE</u>	<u>BEFORE TEST</u>	<u>AFTER TEST</u>
WT. WET SOIL & PAN		<u>252.0</u>
WT. DRY SOIL & PAN		<u>226.1</u>
WT. WATER		
WT. OF PAN NO.	<u># 98</u>	<u>105.6</u>
WT. DRY SOIL		
WATER CONTENT	<u>20.1</u>	<u>21.5</u>

INITIAL DIAL 666 $K = \frac{aL}{\Delta t} \ln \frac{h_1}{h_2}$
 FINAL DIAL 633
 C = 2593.03 PER RING C = 5186.06 FOR 2 RINGS
 (50.0")

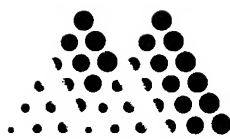
[illegible]

PERCOLATION TEST - FALLING HEAD

DAMES & MOORE

APPENDIX E

GROUND-WATER ANALYTICAL DATA



Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glasco

SAMPLE ID: 870-WS-1/32'

LAB NO: 0001523
GROUP NO: 000297S
DATE SAMPLED: 11/23/92
TIME SAMPLED: 1500
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND(s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

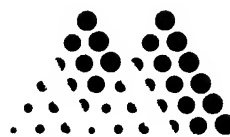
Date Analyzed: 12/02/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-1/32'

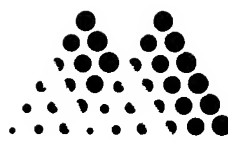
SAMPLE NO: 0001523
SAMPLE SET NO: 000297S
DATE SAMPLED: 11/23/92
TIME SAMPLED: 1500
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	17.4 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	1.8 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	4.9 ug/l	1.0 ug/l
o-Xylene/Styrene*	1.3 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001523
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: 870-WS-1/32'
Date Sampled: 23 NOV 1992
Matrix: Water/Waste Water
Containers: 3

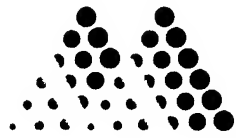
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001523





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001524
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: 870-WS-1/42'
Date Sampled: 23 NOV 1992
Matrix: Water/Waste Water
Containers: 3

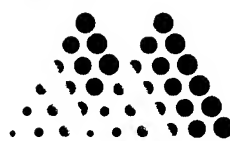
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001524





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-1/42'

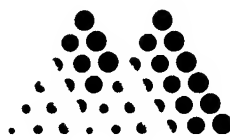
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SAMPLE SET NO: 000297S
DATE SAMPLED: 11/23/92
TIME SAMPLED: 1630
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 20.0 ug/l	20.0 ug/l
Vinyl Chloride	< 20.0 ug/l	20.0 ug/l
Bromomethane	< 20.0 ug/l	20.0 ug/l
Chloroethane	< 20.0 ug/l	20.0 ug/l
Fluorotrichloromethane	< 20.0 ug/l	20.0 ug/l
1,1-Dichloroethene	< 10.0 ug/l	10.0 ug/l
Dichloromethane	< 10.0 ug/l	10.0 ug/l
trans-1,2-Dichloroethene	< 10.0 ug/l	10.0 ug/l
1,1-Dichloroethane	< 10.0 ug/l	10.0 ug/l
Chloroform	< 10.0 ug/l	10.0 ug/l
1,1,1-Trichloroethane	< 10.0 ug/l	10.0 ug/l
Carbon Tetrachloride	< 10.0 ug/l	10.0 ug/l
Benzene	30.5 ug/l	10.0 ug/l
1,2-Dichloroethane	< 10.0 ug/l	10.0 ug/l
Trichloroethene (TCE)	< 10.0 ug/l	10.0 ug/l
1,2-Dichloropropane	< 10.0 ug/l	10.0 ug/l
Bromodichloromethane	< 10.0 ug/l	10.0 ug/l
cis-1,3-Dichloropropene	< 10.0 ug/l	10.0 ug/l
trans-1,3-Dichloropropene	< 10.0 ug/l	10.0 ug/l
Toluene	113 ug/l	10.0 ug/l
Tetrachloroethene (PCE)	< 10.0 ug/l	10.0 ug/l
Chlorodibromomethane	< 10.0 ug/l	10.0 ug/l
Chlorobenzene	< 10.0 ug/l	10.0 ug/l
Ethylbenzene	56.4 ug/l	10.0 ug/l
Bromoform	< 20.0 ug/l	20.0 ug/l
m,p-Xylene	369 ug/l	10.0 ug/l
o-Xylene/Styrene*	103 ug/l	10.0 ug/l

-Continued-



**Mountain States Analytical***The Quality Solution*

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-1/42'

LAB NO: 0001524
GROUP NO: 000297S
DATE SAMPLED: 11/23/92
TIME SAMPLED: 1630
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND(s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 10.0 ug/l	10.0 ug/l
1,1,2-Trichloroethane	< 10.0 ug/l	10.0 ug/l
1,2-Dichlorobenzene	< 10.0 ug/l	10.0 ug/l
1,3-Dichlorobenzene	< 10.0 ug/l	10.0 ug/l
1,4-Dichlorobenzene	< 10.0 ug/l	10.0 ug/l

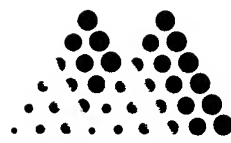
Date Analyzed: 12/09/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001533
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: 870-WS-1/52'
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 3

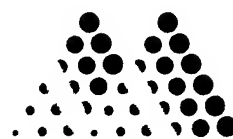
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001533





Mountain States Analytical

The Quality Solution

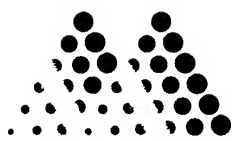
<p>CLIENT: J.M. Montgomery Engineers 4525 So. Wasatch #200 Salt Lake City, UT 84124-</p> <p>ATTN: Mr. Robert Glascot</p> <p>SAMPLE ID: 870-WS-1/52'</p>	<p>SAMPLE NO: 0001533 SAMPLE SET NO: 000297S DATE SAMPLED: 11/24/92 TIME SAMPLED: 830 DATE RECEIVED: 11/25/92 DATE REPORTED: 12/10/92 DISPOSAL DATE: 01/09/93</p>
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ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	27.0 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	59.3 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	21.6 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	107 ug/l	1.0 ug/l
o-Xylene/Styrene*	36.4 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-1/52'

LAB NO: 0001533
GROUP NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 830
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND(s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

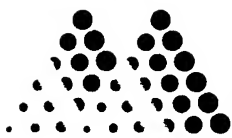
Date Analyzed: 12/02/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001526
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: 870-WS 2/49'
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 2

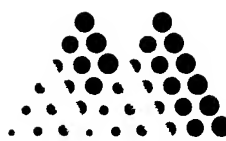
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001526





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

SAMPLE NO: 0001526
SAMPLE SET NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1015
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ATTN: Mr. Robert Glascot

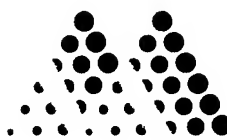
SAMPLE ID: 870-WS 2/49'

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND (s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	8.4 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	13.8 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	4.5 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	30.2 ug/l	1.0 ug/l
o-Xylene/Styrene*	9.4 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS 2/49'

LAB NO: 0001526
GROUP NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1015
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND(s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

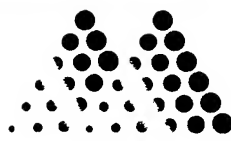
Date Analyzed: 12/02/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001527
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: MW-40
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 3

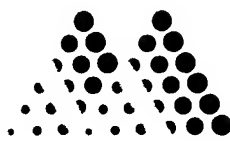
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001527





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: MW-40

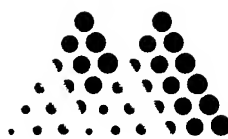
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SAMPLE SET NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 800
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	6.5 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	7.8 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	1.7 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	12.2 ug/l	1.0 ug/l
o-Xylene/Styrene*	3.4 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: MW-40

LAB NO: 0001527
GROUP NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 800
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND (s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

Date Analyzed: 12/02/92

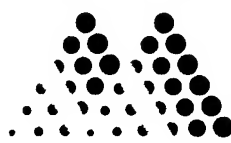
*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader



Member: American Council of Independent Laboratories, Inc.



Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001528
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: 870-WS-2/59'
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 3

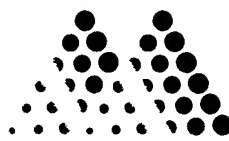
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

I Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

I Analysis for Sample Number 0001528





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-2/59'

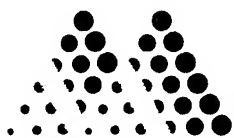
SAMPLE NO: 0001528
SAMPLE SET NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1200
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	24.0 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	68.0 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	50.7 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	294 ug/l	50.0 ug/l
o-Xylene/Styrene*	93.7 ug/l	1.0 ug/l

-Continued-



**Mountain States Analytical***The Quality Solution*

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-2/59'

LAB NO: 0001528
GROUP NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1200
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND (s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

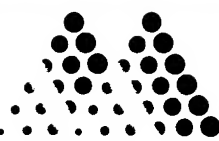
Date Analyzed: 12/02/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001529
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: 870-WS-2/69'
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 2

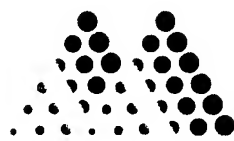
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001529





Mountain States Analytical

The Quality Solution

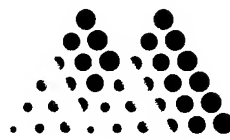
CLIENT:	J.M. Montgomery Engineers 4525 So. Wasatch #200 Salt Lake City, UT 84124-	SAMPLE NO:	0001529
		SAMPLE SET NO:	000297S
		DATE SAMPLED:	11/24/92
		TIME SAMPLED:	1315
ATTN:	Mr. Robert Glascot	DATE RECEIVED:	11/25/92
		DATE REPORTED:	12/10/92
SAMPLE ID:	870-WS-2/69'	DISPOSAL DATE:	01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	43.5 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	71.7 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	38.2 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	258 ug/l	50.0 ug/l
o-Xylene/Styrene*	63.6 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: 870-WS-2/69'

LAB NO: 0001529
GROUP NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1315
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND(s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

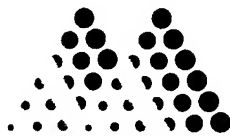
Date Analyzed: 12/02/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001530
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: CPT-40
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 2

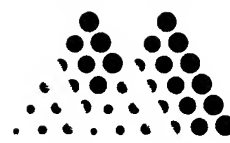
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001530





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: CPT-40

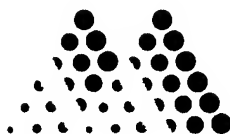
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SAMPLE SET NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1345
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND (s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	< 1.0 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	< 1.0 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene/Styrene*	< 1.0 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: CPT-40

LAB NO: 0001530
GROUP NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1345
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND (s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

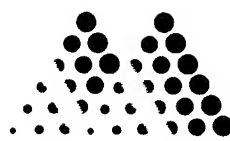
Date Analyzed: 12/02/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001525
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: Trip Blank
Date Sampled: 23 NOV 1992
Matrix: Water/Waste Water
Containers: 2

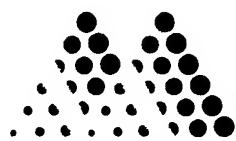
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Volatile Aromatics/Halocarbons	05515	EPA 600 Series 601/ 602	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001525





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: Trip Blank

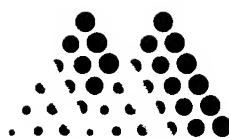
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TIME SAMPLED: 0
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Volatiles - Water Matrix [EPA 601/602] (Capillary)

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
Chloromethane	< 2.0 ug/l	2.0 ug/l
Vinyl Chloride	< 2.0 ug/l	2.0 ug/l
Bromomethane	< 2.0 ug/l	2.0 ug/l
Chloroethane	< 2.0 ug/l	2.0 ug/l
Fluorotrichloromethane	< 2.0 ug/l	2.0 ug/l
1,1-Dichloroethene	< 1.0 ug/l	1.0 ug/l
Dichloromethane	10.7 ug/l	1.0 ug/l
trans-1,2-Dichloroethene	< 1.0 ug/l	1.0 ug/l
1,1-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Chloroform	< 1.0 ug/l	1.0 ug/l
1,1,1-Trichloroethane	< 1.0 ug/l	1.0 ug/l
Carbon Tetrachloride	< 1.0 ug/l	1.0 ug/l
Benzene	< 1.0 ug/l	1.0 ug/l
1,2-Dichloroethane	< 1.0 ug/l	1.0 ug/l
Trichloroethene (TCE)	< 1.0 ug/l	1.0 ug/l
1,2-Dichloropropane	< 1.0 ug/l	1.0 ug/l
Bromodichloromethane	< 1.0 ug/l	1.0 ug/l
cis-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
trans-1,3-Dichloropropene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Tetrachloroethene (PCE)	< 1.0 ug/l	1.0 ug/l
Chlorodibromomethane	< 1.0 ug/l	1.0 ug/l
Chlorobenzene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
Bromoform	< 2.0 ug/l	2.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene/Styrene*	< 1.0 ug/l	1.0 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: Trip Blank

LAB NO: 0001525
GROUP NO: 000297S
DATE SAMPLED: 11/23/92
TIME SAMPLED: 0
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

-Page 2-

COMPOUND(s)	FINAL RESULT	LIMIT OF QUANTITATION
1,1,2,2-Tetrachloroethane	< 1.0 ug/l	1.0 ug/l
1,1,2-Trichloroethane	< 1.0 ug/l	1.0 ug/l
1,2-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,3-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l
1,4-Dichlorobenzene	< 1.0 ug/l	1.0 ug/l

Date Analyzed: 12/02/92

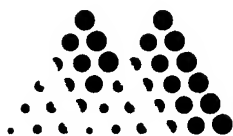
*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader



Member: American Council of Independent Laboratories, Inc.



Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001531
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: CPT-42
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 1

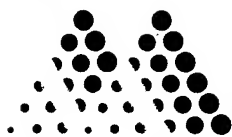
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Btex & Naphthalene	04264	EPA 602 SW-846 5030/8020	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001531





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: CPT-42

SAMPLE NO: 0001531
SAMPLE SET NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1455
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/09/92
DISPOSAL DATE: 01/08/93

ANALYSIS: Gasoline Contamination in Water (BTEX) [EPA 602]

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Benzene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene/Styrene*	< 1.0 ug/l	1.0 ug/l
Naphthalene	< 1.0 ug/l	1.0 ug/l

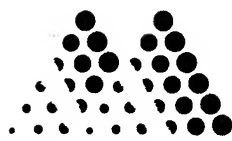
Date Analyzed: 12/03/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001532
Sample Set: 000297S
Date Reported: 10 DEC 1992
Date Received: 25 NOV 1992
Disposal Date: 8 JAN 1993

Attention: Robert Glascot
Project: HAFB USTs
Case Number: VOCs/BTEXN
Purchase Order: 2208.0585

Customer Number: CPT-43
Date Sampled: 24 NOV 1992
Matrix: Water/Waste Water
Containers: 1

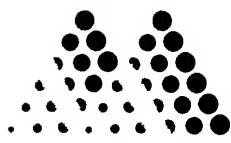
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Btex & Naphthalene	04264	EPA 602 SW-846 5030/8020	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001532





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: CPT-43

SAMPLE NO: 0001532
SAMPLE SET NO: 000297S
DATE SAMPLED: 11/24/92
TIME SAMPLED: 1600
DATE RECEIVED: 11/25/92
DATE REPORTED: 12/09/92
DISPOSAL DATE: 01/08/93

ANALYSIS: Gasoline Contamination in Water (BTEX) [EPA 602]

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Benzene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene/Styrene*	< 1.0 ug/l	1.0 ug/l
Naphthalene	< 1.0 ug/l	1.0 ug/l

Date Analyzed: 12/03/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader



Chain of Custody Number _____
Cooler Number _____
Lot Control ID _____
Page _____ of _____
Air Bill No. _____

LABORATORY Mt States Analytical

MONTGOMERY WATSON, INC.

Phone (801) 272-1900 FAX (801) 272-0430

MW Contact 5630ti / Fulton

Project HAFO USTs

Project Number 22081585

Std. TAT (2 wk)

Appendix C

Phone (801) 272-1900 FAX (801) 272-0430

MW Contact: Glenn / Fulton

Project: HRFO WSTs

Project Number: 22881585

Date Due: Std. TAT (2 wks)

Samplers Signature: Robert B. Ramsey (RWS)

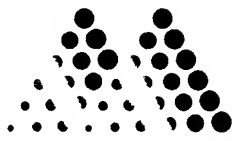
Lab ID No. (Lab Only)	Location ID	Sample ID	Depth Interval (ft)
	870-WS-1/32'		
	870-WS-1/42'		
	Trip Blank 11/23/92		
	870-WS-2/49'		
	MW-40		
	870-WS-2/55'		
	870-WS-2/65'		
	CPT-40		
Broken	CPT-42 - one vial		
Broken	CPT-41 - no vials		
Broken	CPT-43 - one vial		
	870-WS-1/52'		

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature
4 Received Broken/Leaking
(Improperly Sealed)
Y N
Notes:
5 Properly Preserved
Y N
Notes:
6 Received Within
Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA
2 Unbroken on Outer
Package
Y N NA
3 Present on Sample
Y N NA
4 Unbroken on Sample
Y N NA
Notes:
Discrepancies Between
Sample Labels and COC
Record?
Y N
Notes:

ANALYSES REQUESTED									
VOC	BNAE	Pea/PCB	Dioxin/Furan	TPH MOD	Metals	Cyanide	TCLP- Metals	VOC BNAE Post	Other
05515									Biex + N
✓	✓								
✓									
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Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0003135
Sample Set: 000665S
Date Reported: 6 JAN 1993
Date Received: 18 DEC 1992
Disposal Date: 2 FEB 1993

Attention: Robert Glascot
Project: HAFB UST
Case Number:
Purchase Order: 2208.0580

Customer Number: CPT-14
Date Sampled: 18 DEC 1992
Matrix: Combustible Liquids
Containers: 2

Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Priority Pollutant Volatile Organics	01177	EPA SW-846 8240	See Attached		

I Analysis for GC/MS

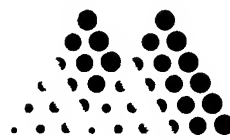
Reviewed and approved by
John Hayes, B.S.
Supervisor, GCMS Group

I Analysis for Sample Number 0003135

19 DEC 1992

19 DEC 1992





Mountain States Analytical

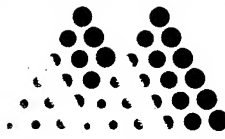
The Quality Solution

CLIENT:	James M. Montgomery Engineers	LAB NO:	3135
	4525 South Wasatch Blvd.	GROUP NO:	665S
	Salt Lake City, UT 84124	DATE SAMPLED:	12/18/92
ATTN:	Mr. Robert Glascot	TIME SAMPLED:	1145
		DATE RECEIVED:	12/18/92
SAMPLE ID:	CPT-14	DATE REPORTED:	01/11/93
PROJECT:	HAFB UST	DISPOSAL DATE:	02/10/93
		ANALYSIS DATE:	01/01/93
ANALYSIS:	Priority Pollutants by GCMS (Volatiles)		
	EPA Method SW-846 8240		

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
-----	-----	-----
Chloromethane	< 500,000 ug/l	500,000 ug/l
Vinyl Chloride	< 500,000 ug/l	500,000 ug/l
Bromomethane	< 500,000 ug/l	500,000 ug/l
Chloroethane	< 500,000 ug/l	500,000 ug/l
Trichlorofluoromethane	< 250,000 ug/l	250,000 ug/l
Acrolein	<1000,000 ug/l	1000,000 ug/l
1,1-Dichloroethene	< 250,000 ug/l	250,000 ug/l
Methylene Chloride	< 250,000 ug/l	250,000 ug/l
Acrylonitrile	<1000,000 ug/l	1000,000 ug/l
1,1-Dichloroethane	< 250,000 ug/l	250,000 ug/l
1,2-Dichloroethene (total)	< 250,000 ug/l	250,000 ug/l
Chloroform	< 250,000 ug/l	250,000 ug/l
1,1,1-Trichloroethane	< 250,000 ug/l	250,000 ug/l
Carbon Tetrachloride	< 250,000 ug/l	250,000 ug/l
Benzene	< 250,000 ug/l	250,000 ug/l
1,2-Dichloroethane	< 250,000 ug/l	250,000 ug/l
Trichloroethene	< 250,000 ug/l	250,000 ug/l
1,2-Dichloropropane	< 250,000 ug/l	250,000 ug/l
Bromodichloromethane	< 250,000 ug/l	250,000 ug/l
2-Chloroethylvinyl ether	< 500,000 ug/l	500,000 ug/l
cis-1,3-Dichloropropene	< 250,000 ug/l	250,000 ug/l
Toluene	< 250,000 ug/l	250,000 ug/l
trans-1,3-Dichloropropene	< 250,000 ug/l	250,000 ug/l
1,1,2-Trichloroethane	< 250,000 ug/l	250,000 ug/l
Tetrachloroethene	< 250,000 ug/l	250,000 ug/l
Dibromochloromethane	< 250,000 ug/l	250,000 ug/l
Chlorobenzene	< 250,000 ug/l	250,000 ug/l
Ethylbenzene	1,400,000 ug/l	250,000 ug/l
Xylenes (Total)	13,000,000 ug/l	250,000 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: James M. Montgomery Engineers LAB NO: 3135
4525 South Wasatch Blvd. GROUP NO: 665S
Salt Lake City, UT 84124 DATE SAMPLED: 12/18/92
ATTN: Mr. Robert Glascot TIME SAMPLED: 1145
DATE RECEIVED: 12/18/92
SAMPLE ID: CPT-14 DATE REPORTED: 01/11/93
PROJECT: HAFB UST DISPOSAL DATE: 02/10/93
ANALYSIS DATE: 01/01/93

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

-Page 2-

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Bromoform	< 250,000 ug/l	250,000 ug/l
1,1,2,2-Tetrachloroethane	< 250,000 ug/l	250,000 ug/l

Comment: Surrogate standards 1,2-Dichloroethane-d4 and Bromofluorobenzene were outside of QC limits. These results were confirmed by reanalysis. Due to the sample matrix and level of target compounds, dilution was required. Limits of quantitation were raised accordingly.

Additionally, at this dilution, halogenated compounds were not be detected.

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group



Notes

Invoice No. 100467
14 JAN 1993



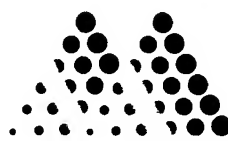
Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd. Suite #200
Salt Lake City, Utah 84124

Sample Set: 000665S
Project: HAFB UST
Case Number:
Purchase Order: 2208.0580

Analysis	Turn Around	Price	Rush Charge	Discount Percent	Discount	Total
Sample Number: 0003135 Customer Number: CPT-14 Date Received: 18 DEC 1992 15:31:24.00 01177 - Priority Pollutant Volatile Organics, sw	Containers: 2 Sampled on 18 DEC 1992 at 11:45:00 Due Date: 2 JAN 1993 18	285.00				
Matrix: Combustible Liquids Storage: GC/MS-9				15.00	42.75	242.25
1 Analysis for Sample Number 0003135	18	\$285.00		15.00 %	\$42.75	\$242.25
				Price		\$285.00
				Rush Charge		0.00
				Discount (15.00%)		(42.75)
				Subtotal		\$242.25
				Total Due		\$242.25



Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001634
Sample Set: 000322S
Date Reported: 14 DEC 1992
Date Received: 1 DEC 1992
Disposal Date: 18 JAN 1993

Attention: Robert Glascot
Project: Hill AFB
Case Number: BTEXN
Purchase Order: 2208.0585

Customer Number: CPT-42
Date Sampled: 30 NOV 1992
Matrix: Wastewater
Containers: 2

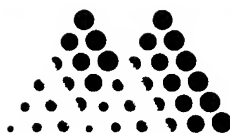
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Btex & Naphthalene	04264	EPA SW-846 5030/ 8020	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001634





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So Wasatch Dr. #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: CPT-42

SAMPLE NO: 0001634
SAMPLE SET NO: 000322S
DATE SAMPLED: 11/30/92
TIME SAMPLED: 1350
DATE RECEIVED: 12/01/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Gasoline Contamination in Water (BTEX) [EPA 602]

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Benzene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene/Styrene*	< 1.0 ug/l	1.0 ug/l
Naphthalene	< 1.0 ug/l	1.0 ug/l

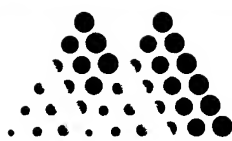
Date Analyzed: 12/03/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

James M. Montgomery Engineers
4525 South Wasatch Blvd., Suite 200
Salt Lake City, UT 84124
Telephone: (801) 272-1900
Facsimile: (801) 272-0403

Sample Number: 0001635
Sample Set: 000322S
Date Reported: 14 DEC 1992
Date Received: 1 DEC 1992
Disposal Date: 18 JAN 1993

Attention: Robert Glascot
Project: Hill AFB
Case Number: BTEXN
Purchase Order: 2208.0585

Customer Number: CPT-43
Date Sampled: 30 NOV 1992
Matrix: Wastewater
Containers: 2

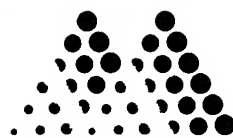
Analysis	Catalog Number	Method	Result	Dry Result	Reporting Units
Btex & Naphthalene	04264	EPA SW-846 5030/ 8020	See Attached		

1 Analysis for GC

Reviewed and approved by
Kenneth Roberts, B.S.
GC Group Leader

1 Analysis for Sample Number 0001635





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So Wasatch Dr. #200
Salt Lake City, UT 84124-

ATTN: Mr. Robert Glascot

SAMPLE ID: CPT-43

SAMPLE NO: 0001635
SAMPLE SET NO: 000322S
DATE SAMPLED: 11/30/92
TIME SAMPLED: 1410
DATE RECEIVED: 12/01/92
DATE REPORTED: 12/10/92
DISPOSAL DATE: 01/09/93

ANALYSIS: Gasoline Contamination in Water (BTEX) [EPA 602]

COMPOUND(s)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Benzene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene/Styrene*	< 1.0 ug/l	1.0 ug/l
Naphthalene	< 1.0 ug/l	1.0 ug/l

Date Analyzed: 12/03/92

*These compounds coelute under the conditions used. The result represents the total amount for these compounds.

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader



Chain of Custody Number _____
Cooler Number _____
Lot Control ID _____
Page 1 of 1
Air Bill No. Hand Delivered

MONTGOMERY WATSON, INC.

Bob Glasscoff

Project Humana 3306 05085

Date Due _____
Samplers Signature Myah Leland (MDL)

Samplers Signature

[illegible][illegible]

2 Sampling Technique:

2 Sampling Techniques

Composite=C

Grab=G

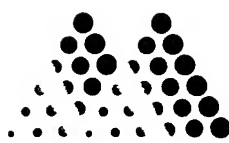
1 Mately: WG - Ground Water DC - Drumm Solids

LD-Drum Liquids

SE - Sediment
AA - Air
EP/TCLP Leachate

SW - Surface Water	SW - Wipe
WS - Surface Water	WS - Wipe

Relinquished by	Received by	Date	Time
<i>[Signature]</i>	<i>[Signature]</i>	11/30/92	1710



Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-6-U-92-HF

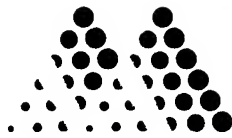
LAB NO: 31657
GROUP NO: 7730
DATE SAMPLED: 09/04/92
TIME SAMPLED: 1105
DATE RECEIVED: 09/04/92
DATE REPORTED: 09/30/92
DISPOSAL DATE: 10/31/92
ANALYSIS DATE: 09/14/92

ANALYSIS: TCL VOLATILES (SOW - 2/88)

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<50 ug/l	50 ug/l
Vinyl Chloride	<50 ug/l	50 ug/l
Bromomethane	<50 ug/l	50 ug/l
Chloroethane	<50 ug/l	50 ug/l
1,1-Dichloroethene	<25 ug/l	25 ug/l
Acetone	<100 ug/l	100 ug/l
Carbon Disulfide	<25 ug/l	25 ug/l
Methylene Chloride	<25 ug/l	25 ug/l
1,1-Dichloroethane	<25 ug/l	25 ug/l
Vinyl Acetate	<25 ug/l	25 ug/l
2-Butanone	<100 ug/l	100 ug/l
1,2-Dichloroethene (total)	<25 ug/l	25 ug/l
Chloroform	<25 ug/l	25 ug/l
1,1,1-Trichloroethane	<25 ug/l	25 ug/l
Carbon Tetrachloride	<25 ug/l	25 ug/l
Benzene	<25 ug/l	25 ug/l
1,2-Dichloroethane	<25 ug/l	25 ug/l
Trichloroethene	<25 ug/l	25 ug/l
1,2-Dichloropropane	<25 ug/l	25 ug/l
Bromodichloromethane	<25 ug/l	25 ug/l
cis-1,3-Dichloropropene	<25 ug/l	25 ug/l
4-Methyl-2-Pentanone	<50 ug/l	50 ug/l
Toluene	<25 ug/l	25 ug/l
trans-1,3-Dichloropropene	<25 ug/l	25 ug/l
1,1,2-Trichloroethane	<25 ug/l	25 ug/l
Tetrachloroethene	<25 ug/l	25 ug/l
2-Hexanone	<50 ug/l	50 ug/l
Dibromochloromethane	<25 ug/l	25 ug/l
Chlorobenzene	<25 ug/l	25 ug/l
Ethylbenzene	<25 ug/l	25 ug/l
Xylenes (total)	<25 ug/l	25 ug/l
Styrene	<25 ug/l	25 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-6-U-92-HF

LAB NO: 31657
GROUP NO: 7730
DATE SAMPLED: 06/04/92
TIME SAMPLED: 1105
DATE RECEIVED: 06/04/92
DATE REPORTED: 09/30/92
DISPOSAL DATE: 10/31/92
ANALYSIS DATE: 06/13/92

ANALYSIS: TCL VOLATILES

- Page 2 -

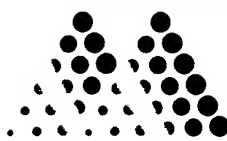
COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
-----	-----	-----
Bromoform	<25 ug/l	25 ug/l
1,1,2,2-Tetrachloroethane	<25 ug/l	25 ug/l

Comment: Due to the sample matrix, dilution was required.
Limits of quantitation were raised accordingly.

Respectfully submitted,

John G Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Robert Glascok

SAMPLE ID: T-870-MW-7-U-92-HF

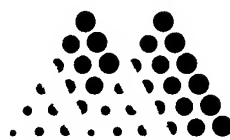
LAB NO: 31786
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 1440
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 09/15/92

ANALYSIS: TCL VOLATILES (SOW - 2/88)

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Acetone	<20 ug/l	20 ug/l
Carbon Disulfide	<5 ug/l	5 ug/l
Methylene Chloride	<5 ug/l	5 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
Vinyl Acetate	<5 ug/l	5 ug/l
2-Butanone	<20 ug/l	20 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	<5 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
4-Methyl-2-Pentanone	<10 ug/l	10 ug/l
Toluene	<5 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
2-Hexanone	<10 ug/l	10 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	<5 ug/l	5 ug/l
Xylenes (total)	<5 ug/l	5 ug/l
Styrene	<5 ug/l	5 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Robert Glascok

SAMPLE ID: T-870-MW-7-U-92-HF

LAB NO: 31786
GROUP NO: 7776
DATE SAMPLED: 06/04/92
TIME SAMPLED: 1440
DATE RECEIVED: 06/04/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 06/13/92

ANALYSIS: TCL VOLATILES

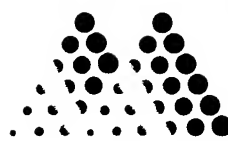
- Page 2 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
-----	-----	-----
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

Respectfully submitted,

John G Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Robert Glascock

SAMPLE ID: T-870-MW-27-U-92-HF

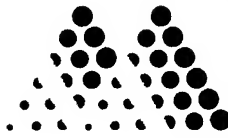
LAB NO: 31781
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 900
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 09/15/92

ANALYSIS: TCL VOLATILES (SOW - 2/88)

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Acetone	<20 ug/l	20 ug/l
Carbon Disulfide	<5 ug/l	5 ug/l
Methylene Chloride	<5 ug/l	5 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
Vinyl Acetate	<5 ug/l	5 ug/l
2-Butanone	<20 ug/l	20 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	<5 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
4-Methyl-2-Pentanone	<10 ug/l	10 ug/l
Toluene	<5 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
2-Hexanone	<10 ug/l	10 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	<5 ug/l	5 ug/l
Xylenes (total)	<5 ug/l	5 ug/l
Styrene	<5 ug/l	5 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Robert Glascok

SAMPLE ID: T-870-MW-27-U-92-HF

LAB NO: 31781
GROUP NO: 7776
DATE SAMPLED: 06/04/92
TIME SAMPLED: 900
DATE RECEIVED: 06/04/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 06/13/92

ANALYSIS: TCL VOLATILES

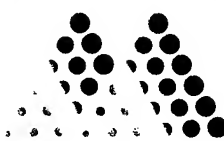
- Page 2 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

Respectfully submitted,

John G Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

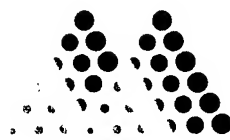
CLIENT: J.M. Montgomery Engineers	LAB NO: 31658
4525 S Wasatch #200	GROUP NO: 7730
Salt Lake City, UT 84124	DATE SAMPLED: 09/04/92
	TIME SAMPLED: 1110
ATTN: Mr. Bob Glascok	DATE RECEIVED: 09/04/92
	DATE REPORTED: 09/22/92
SAMPLE ID: T-870-MW-6U-92-HF	DISPOSAL DATE: 10/23/92
	ANALYSIS DATE: 09/11/92

ANALYSIS: TCL SEMIVOLATILES (SOW - 2/88)

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
N-Nitrosodimethylamine	<20 ug/l	20 ug/l
Phenol	<20 ug/l	20 ug/l
Bis(2-chloroethyl) ether	<20 ug/l	20 ug/l
2-Chlorophenol	<20 ug/l	20 ug/l
1,3-Dichlorobenzene	<20 ug/l	20 ug/l
1,4-Dichlorobenzene	<20 ug/l	20 ug/l
Benzyl Alcohol	<40 ug/l	40 ug/l
1,2-Dichlorobenzene	<20 ug/l	20 ug/l
2-Methylphenol	<20 ug/l	20 ug/l
Bis(2-chloroisopropyl) ether	<20 ug/l	20 ug/l
4-Methylphenol	<20 ug/l	20 ug/l
3- or 4-Methylphenol	<20 ug/l	20 ug/l
Hexachloroethane	<20 ug/l	20 ug/l
n-Nitrosodi-n-propylamine	<20 ug/l	20 ug/l
Nitrobenzene	<20 ug/l	20 ug/l
Isophorone	<20 ug/l	20 ug/l
2,4-Dimethylphenol	<20 ug/l	20 ug/l
2-Nitrophenol	<20 ug/l	20 ug/l
Benzoic Acid	<100 ug/l	100 ug/l
Bis(2-chloroethoxy) methane	<20 ug/l	20 ug/l
2,4-Dichlorophenol	<20 ug/l	20 ug/l
1,2,4-Trichlorobenzene	<20 ug/l	20 ug/l
Naphthalene	<20 ug/l	20 ug/l
4-Chloroaniline	<40 ug/l	40 ug/l
Hexachlorobutadiene	<20 ug/l	20 ug/l
4-Chloro-3-Methylphenol	<20 ug/l	20 ug/l
2-Methylnaphthalene	<20 ug/l	20 ug/l
Hexachlorocyclopentadiene	<20 ug/l	20 ug/l
2,4,6-Trichlorophenol	<20 ug/l	20 ug/l
2,4,5-Trichlorophenol	<20 ug/l	20 ug/l
2-Chloronaphthalene	<20 ug/l	20 ug/l
2-Nitroaniline	<100 ug/l	100 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

LAB NO: 31658
GROUP NO: 7730
DATE SAMPLED: 09/04/92
TIME SAMPLED: 1110
DATE RECEIVED: 09/04/92
DATE REPORTED: 09/22/92
DISPOSAL DATE: 10/23/92
ANALYSIS DATE: 09/11/92

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-6U-92-HF

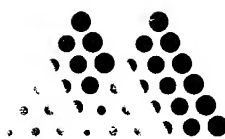
ANALYSIS: TCL SEMIVOLATILES (SOW - 2/88)

- Page 2 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
2,6-Dinitrotoluene	<20 ug/l	20 ug/l
Acenaphthylene	<20 ug/l	20 ug/l
3-Nitroaniline	<100 ug/l	100 ug/l
2,4-Dinitrophenol	<100 ug/l	100 ug/l
Acenaphthene	<20 ug/l	20 ug/l
4-Nitrophenol	<100 ug/l	100 ug/l
2,4-Dinitrotoluene	<20 ug/l	20 ug/l
Dibenzofuran	<20 ug/l	20 ug/l
Diethylphthalate	<20 ug/l	20 ug/l
4-Chlorophenyl phenyl ether	<20 ug/l	20 ug/l
Fluorene	<20 ug/l	20 ug/l
4-Nitroaniline	<40 ug/l	40 ug/l
4,6-Dinitro-2-methylphenol	<100 ug/l	100 ug/l
n-Nitrosodiphenylamine	<20 ug/l	20 ug/l
4-Bromophenyl phenyl ether	<20 ug/l	20 ug/l
Hexachlorobenzene	<20 ug/l	20 ug/l
Pentachlorophenol	<100 ug/l	100 ug/l
Phenanthrene	<20 ug/l	20 ug/l
Anthracene	<20 ug/l	20 ug/l
Carbazole	<20 ug/l	20 ug/l
Di-n-butylphthalate	<20 ug/l	20 ug/l
Fluoranthene	<20 ug/l	20 ug/l
Pyrene	<20 ug/l	20 ug/l
Butylbenzylphthalate	<20 ug/l	20 ug/l
Bis(2-ethylhexyl)phthalate	<20 ug/l	20 ug/l
3,3'-Dichlorobenzidine	<40 ug/l	40 ug/l
Benzo(a)anthracene	<20 ug/l	20 ug/l
Chrysene	<20 ug/l	20 ug/l
Di-n-octyl phthalate	<20 ug/l	20 ug/l
Benzo(b)fluoranthene	<20 ug/l	20 ug/l
Benzo(k)fluoranthene	<20 ug/l	20 ug/l

- Continued -





Mountain States Analytical

The Quality Solution

CLIENT:	J.M. Montgomery Engineers	LAB NO:	31658
	4525 S Wasatch #200	GROUP NO:	7730
	Salt Lake City, UT 84124	DATE SAMPLED:	09/04/92
		TIME SAMPLED:	1110
ATTN:	Mr. Bob Glascok	DATE RECEIVED:	09/04/92
		DATE REPORTED:	09/22/92
SAMPLE ID:	T-870-MW-6U-92-HF	DISPOSAL DATE:	10/23/92
		ANALYSIS DATE:	09/11/92
ANALYSIS:	TCL SEMIVOLATILES (SOW - 2/88)		

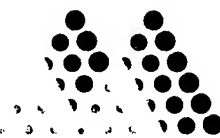
- Page 3 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
-----	-----	-----
Benzo(a)pyrene	<20 ug/l	20 ug/l
Indeno(1,2,3-c,d)pyrene	<20 ug/l	20 ug/l
Dibenz(a,h)anthracene	<20 ug/l	20 ug/l
Benzo(g,h,i)perylene	<20 ug/l	20 ug/l

Respectfully submitted,

John G. Hayes, B.S.
GCMS Group Leader





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-7-U-92-HF

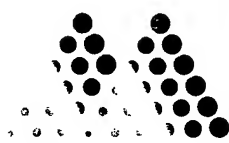
LAB NO: 31787
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 1445
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 09/11/92

ANALYSIS: TCL SEMIVOLITILES (SOW - 2/88)

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
N-Nitrosodimethylamine	<20 ug/l	20 ug/l
Phenol	<20 ug/l	20 ug/l
Bis(2-chloroethyl) ether	<20 ug/l	20 ug/l
2-Chlorophenol	<20 ug/l	20 ug/l
1,3-Dichlorobenzene	<20 ug/l	20 ug/l
1,4-Dichlorobenzene	<20 ug/l	20 ug/l
Benzyl Alcohol	<40 ug/l	40 ug/l
1,2-Dichlorobenzene	<20 ug/l	20 ug/l
2-Methylphenol	<20 ug/l	20 ug/l
Bis(2-chloroisopropyl) ether	<20 ug/l	20 ug/l
4-Methylphenol	<20 ug/l	20 ug/l
3- or 4-Methylphenol	<20 ug/l	20 ug/l
Hexachloroethane	<20 ug/l	20 ug/l
n-Nitrosodi-n-propylamine	<20 ug/l	20 ug/l
Nitrobenzene	<20 ug/l	20 ug/l
Isophorone	<20 ug/l	20 ug/l
2,4-Dimethylphenol	<20 ug/l	20 ug/l
2-Nitrophenol	<20 ug/l	20 ug/l
Benzoic Acid	<100 ug/l	100 ug/l
Bis(2-chloroethoxy) methane	<20 ug/l	20 ug/l
2,4-Dichlorophenol	<20 ug/l	20 ug/l
1,2,4-Trichlorobenzene	<20 ug/l	20 ug/l
Naphthalene	<20 ug/l	20 ug/l
4-Chloroaniline	<40 ug/l	40 ug/l
Hexachlorobutadiene	<20 ug/l	20 ug/l
4-Chloro-3-Methylphenol	<20 ug/l	20 ug/l
2-Methylnaphthalene	<20 ug/l	20 ug/l
Hexachlorocyclopentadiene	<20 ug/l	20 ug/l
2,4,6-Trichlorophenol	<20 ug/l	20 ug/l
2,4,5-Trichlorophenol	<20 ug/l	20 ug/l
2-Chloronaphthalene	<20 ug/l	20 ug/l
2-Nitroaniline	<100 ug/l	100 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-7-U-92-HF

ANALYSIS: PP GC/MS BN Ex. 8270

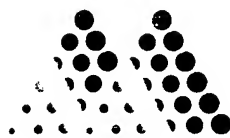
LAB NO: 31787
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 1445
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 09/11/92

- Page 2 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
2,6-Dinitrotoluene	<20 ug/l	20 ug/l
Acenaphthylene	<20 ug/l	20 ug/l
3-Nitroaniline	<100 ug/l	100 ug/l
2,4-Dinitrophenol	<100 ug/l	100 ug/l
Acenaphthene	<20 ug/l	20 ug/l
4-Nitrophenol	<100 ug/l	100 ug/l
2,4-Dinitrotoluene	<20 ug/l	20 ug/l
Dibenzofuran	<20 ug/l	20 ug/l
Diethylphthalate	<20 ug/l	20 ug/l
4-Chlorophenyl phenyl ether	<20 ug/l	20 ug/l
Fluorene	<20 ug/l	20 ug/l
4-Nitroaniline	<40 ug/l	40 ug/l
4,6-Dinitro-2-methylphenol	<100 ug/l	100 ug/l
n-Nitrosodiphenylamine	<20 ug/l	20 ug/l
4-Bromophenyl phenyl ether	<20 ug/l	20 ug/l
Hexachlorobenzene	<20 ug/l	20 ug/l
Pentachlorophenol	<100 ug/l	100 ug/l
Phenanthrene	<20 ug/l	20 ug/l
Anthracene	<20 ug/l	20 ug/l
Carbazole	<20 ug/l	20 ug/l
Di-n-butylphthalate	<20 ug/l	20 ug/l
Fluoranthene	<20 ug/l	20 ug/l
Pyrene	<20 ug/l	20 ug/l
Butylbenzylphthalate	<20 ug/l	20 ug/l
Bis(2-ethylhexyl)phthalate	<20 ug/l	20 ug/l
3,3'-Dichlorobenzidine	<40 ug/l	40 ug/l
Benzo(a)anthracene	<20 ug/l	20 ug/l
Chrysene	<20 ug/l	20 ug/l
Di-n-octyl phthalate	<20 ug/l	20 ug/l
Benzo(b)fluoranthene	<20 ug/l	20 ug/l
Benzo(k)fluoranthene	<20 ug/l	20 ug/l

-Continued-



**Mountain States Analytical***The Quality Solution*

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-7-U-92-HF

ANALYSIS: PP GC/MS BN Ex. 8270

LAB NO: 31787
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 1445
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/16/92
DISPOSAL DATE: 10/17/92
ANALYSIS DATE: 09/11/92

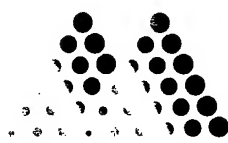
- Page 3 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
-----	-----	-----
Benzo(a)pyrene	<20 ug/l	20 ug/l
Indeno(1,2,3-c,d)pyrene	<20 ug/l	20 ug/l
Dibenz(a,h)anthracene	<20 ug/l	20 ug/l
Benzo(g,h,i)perylene	<20 ug/l	20 ug/l

Respectfully submitted,

John G. Hayes, B.S.
GCMS Group Leader





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-27-U-92-HF

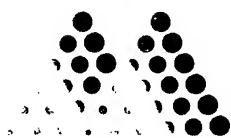
LAB NO: 31782
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 905
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/30/92
DISPOSAL DATE: 10/31/92
ANALYSIS DATE: 09/11/92

ANALYSIS: TCL SEMIVOLITILES (SOW - 2/88)

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
N-Nitrosodimethylamine	<20 ug/l	20 ug/l
Phenol	<20 ug/l	20 ug/l
Bis(2-chloroethyl) ether	<20 ug/l	20 ug/l
2-Chlorophenol	<20 ug/l	20 ug/l
1,3-Dichlorobenzene	<20 ug/l	20 ug/l
1,4-Dichlorobenzene	<20 ug/l	20 ug/l
Benzyl Alcohol	<40 ug/l	40 ug/l
1,2-Dichlorobenzene	<20 ug/l	20 ug/l
2-Methylphenol	<20 ug/l	20 ug/l
Bis(2-chloroisopropyl) ether	<20 ug/l	20 ug/l
4-Methylphenol	<20 ug/l	20 ug/l
3- or 4-Methylphenol	<20 ug/l	20 ug/l
Hexachloroethane	<20 ug/l	20 ug/l
n-Nitrosodi-n-propylamine	<20 ug/l	20 ug/l
Nitrobenzene	<20 ug/l	20 ug/l
Isophorone	<20 ug/l	20 ug/l
2,4-Dimethylphenol	<20 ug/l	20 ug/l
2-Nitrophenol	<20 ug/l	20 ug/l
Benzoic Acid	<100 ug/l	100 ug/l
Bis(2-chloroethoxy)methane	<20 ug/l	20 ug/l
2,4-Dichlorophenol	<20 ug/l	20 ug/l
1,2,4-Trichlorobenzene	<20 ug/l	20 ug/l
Naphthalene	<20 ug/l	20 ug/l
4-Chloroaniline	<40 ug/l	40 ug/l
Hexachlorobutadiene	<20 ug/l	20 ug/l
4-Chloro-3-Methylphenol	<20 ug/l	20 ug/l
2-Methylnaphthalene	<20 ug/l	20 ug/l
Hexachlorocyclopentadiene	<20 ug/l	20 ug/l
2,4,6-Trichlorophenol	<20 ug/l	20 ug/l
2,4,5-Trichlorophenol	<20 ug/l	20 ug/l
2-Chloronaphthalene	<20 ug/l	20 ug/l
2-Nitroaniline	<100 ug/l	100 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-27-U-92-HF

ANALYSIS: PP GC/MS BN Ex. 3270

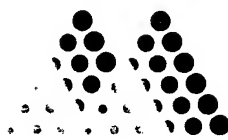
LAB NO: 31782
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 905
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/30/92
DISPOSAL DATE: 10/31/92
ANALYSIS DATE: 09/11/92

- Page 2 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
2,6-Dinitrotoluene	<20 ug/l	20 ug/l
Acenaphthylene	<20 ug/l	20 ug/l
3-Nitroaniline	<100 ug/l	100 ug/l
2,4-Dinitrophenol	<100 ug/l	100 ug/l
Acenaphthene	<20 ug/l	20 ug/l
4-Nitrophenol	<100 ug/l	100 ug/l
2,4-Dinitrotoluene	<20 ug/l	20 ug/l
Dibenzofuran	<20 ug/l	20 ug/l
Diethylphthalate	<20 ug/l	20 ug/l
4-Chlorophenyl phenyl ether	<20 ug/l	20 ug/l
Fluorene	<20 ug/l	20 ug/l
4-Nitroaniline	<40 ug/l	40 ug/l
4,6-Dinitro-2-methylphenol	<100 ug/l	100 ug/l
n-Nitrosodiphenylamine	<20 ug/l	20 ug/l
4-Bromophenyl phenyl ether	<20 ug/l	20 ug/l
Hexachlorobenzene	<20 ug/l	20 ug/l
Pentachlorophenol	<100 ug/l	100 ug/l
Phenanthrene	<20 ug/l	20 ug/l
Anthracene	<20 ug/l	20 ug/l
Carbazole	<20 ug/l	20 ug/l
Di-n-butylphthalate	<20 ug/l	20 ug/l
Fluoranthene	<20 ug/l	20 ug/l
Pyrene	<20 ug/l	20 ug/l
Butylbenzylphthalate	<20 ug/l	20 ug/l
Bis(2-ethylhexyl)phthalate	<20 ug/l	20 ug/l
3,3'-Dichlorobenzidine	<40 ug/l	40 ug/l
Benzo(a)anthracene	<20 ug/l	20 ug/l
Chrysene	<20 ug/l	20 ug/l
Di-n-octyl phthalate	<20 ug/l	20 ug/l
Benzo(b)fluoranthene	<20 ug/l	20 ug/l
Benzo(k)fluoranthene	<20 ug/l	20 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-27-U-92-HF

ANALYSIS: PP GC/MS BN Ex. 8270

LAB NO: 31782
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 905
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/30/92
DISPOSAL DATE: 10/31/92
ANALYSIS DATE: 09/11/92

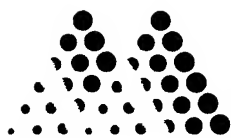
- Page 3 -

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Benzo(a)pyrene	<20 ug/l	20 ug/l
Indeno(1,2,3-c,d)pyrene	<20 ug/l	20 ug/l
Dibenz(a,h)anthracene	<20 ug/l	20 ug/l
Benzo(g,h,i)perylene	<20 ug/l	20 ug/l

Respectfully submitted,

John G. Hayes, B.S.
GCMS Group Leader





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-6-U-92-HF

LAB NO: 31659
GROUP NO: 7730
DATE SAMPLED: 09/04/92
TIME SAMPLED: 1115
DATE RECEIVED: 09/04/92
DATE REPORTED: 09/14/92
DISPOSAL DATE: 10/14/92

ANALYSIS: PESTICIDES/PCBs by Method 8081.

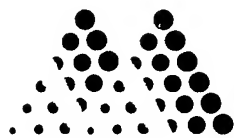
COMPOUNDS	RESULTS	LIMIT OF QUANTITATION
Alpha BHC	< 0.10 ug/l	0.10 ug/l
Beta BHC	< 0.10 ug/l	0.10 ug/l
Delta BHC	< 0.10 ug/l	0.10 ug/l
Gamma BHC - Lindane	< 0.10 ug/l	0.10 ug/l
Heptachlor	< 0.10 ug/l	0.10 ug/l
Aldrin	< 0.10 ug/l	0.10 ug/l
Heptachlor Epoxide	< 0.10 ug/l	0.10 ug/l
Endosulfan I	< 0.10 ug/l	0.10 ug/l
Dieldrin	< 0.10 ug/l	0.10 ug/l
p,p'-DDE	< 0.10 ug/l	0.10 ug/l
Endrin	< 0.10 ug/l	0.10 ug/l
Endosulfan II	< 0.10 ug/l	0.10 ug/l
p,p'-DDD	< 0.10 ug/l	0.10 ug/l
Endosulfan Sulfate	< 0.10 ug/l	0.10 ug/l
p,p'-DDT	< 0.10 ug/l	0.10 ug/l
Endrin ketone	< 0.10 ug/l	0.10 ug/l
alpha-Chlordane	< 0.10 ug/l	0.10 ug/l
gamma-Chlordane	< 0.10 ug/l	0.10 ug/l
Methoxychlor	< 0.50 ug/l	0.50 ug/l
Toxaphene	< 1.00 ug/l	1.00 ug/l
Aroclor-1016	< 1.00 ug/l	1.00 ug/l
Aroclor-1221	< 1.00 ug/l	1.00 ug/l
Aroclor-1232	< 1.00 ug/l	1.00 ug/l
Aroclor-1242	< 1.00 ug/l	1.00 ug/l
Aroclor-1248	< 1.00 ug/l	1.00 ug/l
Aroclor-1254	< 1.00 ug/l	1.00 ug/l
Aroclor-1260	< 1.00 ug/l	1.00 ug/l

Date Analyzed: 09/11/92

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-7-U-92-HF

LAB NO: 31788
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 1450
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/14/92
DISPOSAL DATE: 10/14/92

ANALYSIS: PESTICIDES/PCBs by Method 8081.

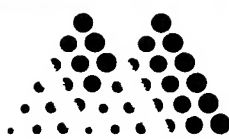
COMPOUNDS	RESULTS	LIMIT OF QUANTITATION
Alpha BHC	< 0.10 ug/l	0.10 ug/l
Beta BHC	< 0.10 ug/l	0.10 ug/l
Delta BHC	< 0.10 ug/l	0.10 ug/l
Gamma BHC - Lindane	< 0.10 ug/l	0.10 ug/l
Heptachlor	< 0.10 ug/l	0.10 ug/l
Aldrin	< 0.10 ug/l	0.10 ug/l
Heptachlor Epoxide	< 0.10 ug/l	0.10 ug/l
Endosulfan I	< 0.10 ug/l	0.10 ug/l
Dieldrin	< 0.10 ug/l	0.10 ug/l
p,p'-DDE	< 0.10 ug/l	0.10 ug/l
Endrin	< 0.10 ug/l	0.10 ug/l
Endosulfan II	< 0.10 ug/l	0.10 ug/l
p,p'-DDD	< 0.10 ug/l	0.10 ug/l
Endosulfan Sulfate	< 0.10 ug/l	0.10 ug/l
p,p'-DDT	< 0.10 ug/l	0.10 ug/l
Endrin ketone	< 0.10 ug/l	0.10 ug/l
alpha-Chlordane	< 0.10 ug/l	0.10 ug/l
gamma-Chlordane	< 0.10 ug/l	0.10 ug/l
Methoxychlor	< 0.50 ug/l	0.50 ug/l
Toxaphene	< 1.00 ug/l	1.00 ug/l
Aroclor-1016	< 1.00 ug/l	1.00 ug/l
Aroclor-1221	< 1.00 ug/l	1.00 ug/l
Aroclor-1232	< 1.00 ug/l	1.00 ug/l
Aroclor-1242	< 1.00 ug/l	1.00 ug/l
Aroclor-1248	< 1.00 ug/l	1.00 ug/l
Aroclor-1254	< 1.00 ug/l	1.00 ug/l
Aroclor-1260	< 1.00 ug/l	1.00 ug/l

Date Analyzed: 09/11/92

Respectfully submitted,

Kenneth A. Roberts, B.S.
GC Group Leader





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

ATTN: Mr. Bob Glascok

SAMPLE ID: T-870-MW-27-U-92-HF


LAB NO: 31783
GROUP NO: 7776
DATE SAMPLED: 09/07/92
TIME SAMPLED: 910
DATE RECEIVED: 09/08/92
DATE REPORTED: 09/14/92
DISPOSAL DATE: 10/14/92

ANALYSIS: PESTICIDES/PCBs by Method 8081.

COMPOUNDS	RESULTS	LIMIT OF QUANTITATION
Alpha BHC	< 0.10 ug/l	0.10 ug/l
Beta BHC	< 0.10 ug/l	0.10 ug/l
Delta BHC	< 0.10 ug/l	0.10 ug/l
Gamma BHC - Lindane	< 0.10 ug/l	0.10 ug/l
Heptachlor	< 0.10 ug/l	0.10 ug/l
Aldrin	< 0.10 ug/l	0.10 ug/l
Heptachlor Epoxide	< 0.10 ug/l	0.10 ug/l
Endosulfan I	< 0.10 ug/l	0.10 ug/l
Dieldrin	< 0.10 ug/l	0.10 ug/l
p,p'-DDE	< 0.10 ug/l	0.10 ug/l
Endrin	< 0.10 ug/l	0.10 ug/l
Endosulfan II	< 0.10 ug/l	0.10 ug/l
p,p'-DDD	< 0.10 ug/l	0.10 ug/l
Endosulfan Sulfate	< 0.10 ug/l	0.10 ug/l
p,p'-DDT	< 0.10 ug/l	0.10 ug/l
Endrin ketone	< 0.10 ug/l	0.10 ug/l
alpha-Chlordane	< 0.10 ug/l	0.10 ug/l
gamma-Chlordane	< 0.10 ug/l	0.10 ug/l
Methoxychlor	< 0.50 ug/l	0.50 ug/l
Toxaphene	< 1.00 ug/l	1.00 ug/l
Aroclor-1016	< 1.00 ug/l	1.00 ug/l
Aroclor-1221	< 1.00 ug/l	1.00 ug/l
Aroclor-1232	< 1.00 ug/l	1.00 ug/l
Aroclor-1242	< 1.00 ug/l	1.00 ug/l
Aroclor-1248	< 1.00 ug/l	1.00 ug/l
Aroclor-1254	< 1.00 ug/l	1.00 ug/l
Aroclor-1260	< 1.00 ug/l	1.00 ug/l

Date Analyzed: 09/11/92

Respectfully submitted,

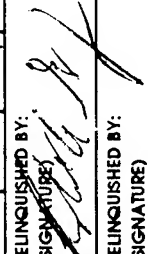
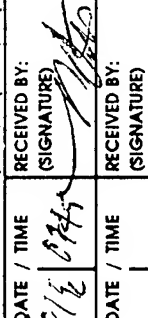
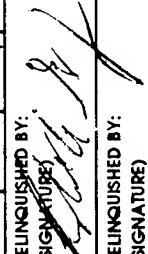
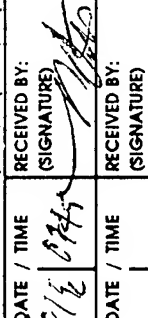
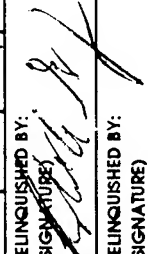
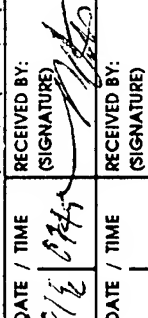

Kenneth A. Roberts, B.S.
GC Group Leader

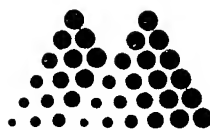


MONTGOMERY LABORATORIES

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CON-TAINERS	REMARKS
2208.0403		11ST Sil 870			
ANALYSIS USE 1 COLUMN PER BOTTLE S-1000s TEL P-1000s TEL M-1000s TEL C-1000s TEL					
STA. NO.	DATE	TIME	COM.	GRAB	STATION LOCATION
	9/17/92	0900		✓	T-870-MW-27-U-92-HF
		0905		✓	T-870-MW-27-U-92-HF
		0910		✓	T-870-MW-27-U-92-HF
		0915		✓	T-870-MW-27-U-92-HF
		0918		✓	T-870-MW-27-U-92-HF
		1440		✓	T-870-MW-27-U-92-HF
		1445		✓	T-870-MW-27-U-92-HF
		1450		✓	T-870-MW-27-U-92-HF
		1455		✓	T-870-MW-27-U-92-HF
		1457		✓	T-870-MW-27-U-92-HF
RELINQUISHED BY: (SIGNATURE)  DATE / TIME 9/17/92 1457 RECEIVED BY: (SIGNATURE)  DATE / TIME 9/17/92 1457					
RELINQUISHED BY: (SIGNATURE)  DATE / TIME 9/17/92 1457 RECEIVED BY: (SIGNATURE)  DATE / TIME 9/17/92 1457					
RELINQUISHED BY: (SIGNATURE)  DATE / TIME 9/17/92 1457 RECEIVED BY: (SIGNATURE)  DATE / TIME 9/17/92 1457					



Mountain States Analytical

The Quality Solution

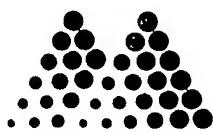
*** INVOICE ***

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

INVOICE NO: 7776
Invoice Date: 09/28/92
Date Samples Rec'd: 09/08/92
P.O. Number:

ATTN: Mr. Robert Glascok
PROJECT: 2208.0402 UST Site 870


LAB SAMPLE NO DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RUSH CRG%	FEE
31781 09/07/92	900 T-870-MW-27-U-92-HF	Volatiles, (TCL) w/ww		229.50
31782 09/07/92	905 T-870-MW-27-U-92-HF	Semi-Volatile TCL w/ww		459.00
31783 09/07/92	910 T-870-MW-27-U-92-HF	Pesticides/PCBs TCL w/ww		246.50
31784 09/07/92	915 T-870-MW-27-U-92-HF	Aluminum, FAA w/ww		11.90
		Antimony, FAA w/ww		11.90
		Arsenic, GFAA w/ww		25.50
		Barium, FAA w/ww		11.90
		Beryllium, FAA w/ww		11.90
		Cadmium, FAA w/ww		11.90
		Calcium, FAA w/ww		11.90
		Chromium, FAA w/ww		11.90
		Cobalt, FAA w/ww		11.90
		Copper, FAA w/ww		11.90
		Iron, FAA w/ww		11.90
		Lead, Total GFAA w/ww		25.50
		Magnesium, FAA w/ww		11.90
		Manganese, FAA w/ww		11.90
		Mercury Prep. CV		0.00
		Mercury, CVAA w/ww		21.25
		Metals Prep. GFAA		0.00
		Metals Digestion w/ww		12.75
		Metals Prep. FAA		0.00
		Nickel, FAA w/ww		11.90
		Potassium, FAA w/ww		11.90
		Selenium, GFAA w/ww		25.50
		Silver, FAA w/ww		11.90
		Sodium, FAA w/ww		11.90
		Thallium, GFAA w/ww		34.00
		Vanadium, FAA w/ww		11.90
		Zinc, FAA w/ww		11.90
31785 09/07/92	918 T-870-MW-27-U-92-HF	Cyanide, Total w/ww		46.75
31786 09/07/92	1440 T-870-MW-7-U-92-HF	Volatiles, (TCL) w/ww		229.50
31787 09/07/92	1445 T-870-MW-7-U-92-HF	Semi-Volatile TCL w/ww		459.00



Mountain States Analytical

The Quality Solution

31788 09/07/92 1450 T-870-MW-7-U-92-HF	Pesticides/PCBs TCL w/ww	246.50
31789 09/07/92 1455 T-870-MW-7-U-92-HF	Aluminum, FAA w/ww	11.90
	Antimony, FAA w/ww	11.90
	Arsenic, GFAA w/ww	25.50
	Barium, FAA w/ww	11.90
	Beryllium, FAA w/ww	11.90
	Cadmium, FAA w/ww	11.90
	Calcium, FAA w/ww	11.90
	Chromium, FAA w/ww	11.90
	Cobalt, FAA w/ww	11.90
	Copper, FAA w/ww	11.90
	Iron, FAA w/ww	11.90
	Lead, Total GFAA w/ww	25.50
	Magnesium, FAA w/ww	11.90
	Manganese, FAA w/ww	11.90
	Mercury Prep. CV	0.00
	Mercury, CVAA w/ww	21.25
	Metals Prep. GFAA	0.00
	Metals Digestion w/ww	12.75
	Metals Prep. FAA	0.00
	Nickel, FAA w/ww	11.90
	Potassium, FAA w/ww	11.90
	Selenium, GFAA w/ww	25.50
	Silver, FAA w/ww	11.90
	Sodium, FAA w/ww	11.90
	Thallium, GFAA w/ww	34.00
	Vanadium, FAA w/ww	11.90
	Zinc, FAA w/ww	11.90
31790 09/07/92 1457 T-870-MW-7-U-92-HF	Cyanide, Total w/ww	46.75


Reviewed and Approved:

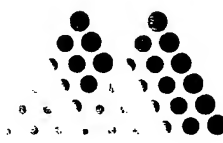
Total Due: \$ 2680.90

MONTGOMERY LABORATORIES

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CONTAINERS	ANALYSIS					REMARKS		
STA. NO.	DATE	TIME	COMP.		GRAB	STATION LOCATION	TCL VOC	TCL S-VOC	TCL PEST/PCP		TCL PCB	TCL CR
2208-0402	9/4/92	1105		✓	T-870-MW-6-U-92-4F	2-402	✓					<p>✓ Note VOCs Rejected Strongly w/ the acid.</p>
		1110		✓	T-870-MW-6-U-92-4F	3-12	✓					
		1115		✓	T-870-MW-6-U-92-4F	2-12		✓				
		1120		✓	T-870-MW-6-U-92-4F	1-12			✓			
		1123		✓	T-870-MW-6-U-92-4F	1-12			✓			
<p>RELINQUISHED BY: (SIGNATURE) <i>Patricia B...</i> DATE / TIME 9/11/92 1335 RECEIVED BY: (SIGNATURE) <i>Jeff Elsen</i> DATE / TIME 9/14/92 1:40</p>												
<p>RELINQUISHED BY: (SIGNATURE) <i>Patricia B...</i> DATE / TIME 9/11/92 1335 RECEIVED BY: (SIGNATURE) <i>Jeff Elsen</i> DATE / TIME 9/14/92 1:40</p>												
<p>RELINQUISHED BY: (SIGNATURE) <i>Patricia B...</i> DATE / TIME 9/11/92 1335 RECEIVED BY: (SIGNATURE) <i>Jeff Elsen</i> DATE / TIME 9/14/92 1:40</p>												



Mountain States Analytical

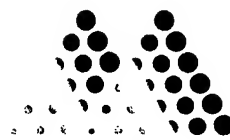
The Quality Solution

CLIENT: J.M. Montgomery Engineers
 4525 So. Wasatch #200
 Salt Lake City, UT 84124-
 Phone: 801-272-1900 801-272-0430 (FAX)
 ATTN: Mr. Bob Glascok
 Project: 2208.0402 UST Site 870

Date Samples Rec'd: 09/04/92
 MSAI Group No.: 7730
 Sample Matrix: Aqueous
 Report Date: 09/28/92
 P.O. Number:

LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
31657 09/04/92	1105 T-870-MW-6-U-92-HF	Volatiles, (TCL) w/ww	See Attach ---
31658 09/04/92	1110 T-870-MW-6-U-92-HF	Semi-Volatile TCL w/ww	See Attach ---
31659 09/04/92	1115 T-870-MW-6-U-92-HF	Pesticides/PCBs TCL w/w	See Attach ---
31660 09/04/92	1120 T-870-MW-6-U-92-HF	Aluminum, FAA w/ww	1.43 mg/l
		Antimony, FAA w/ww	<0.25 mg/l
		Arsenic, GFAA w/ww	<0.010 mg/l
		Barium, FAA w/ww	0.71 mg/l
		Beryllium, FAA w/ww	<0.005 mg/l
		Cadmium, FAA w/ww	<0.005 mg/l
		Calcium, FAA w/ww	412 mg/l
		Chromium, FAA w/ww	<0.05 mg/l
		Cobalt, FAA w/ww	<0.05 mg/l
		Copper, FAA w/ww	0.02 mg/l
		Iron, FAA w/ww	1.43 mg/l
		Lead, Total GFAA w/ww	<0.05 mg/l
		Magnesium, FAA w/ww	84 mg/l
		Manganese, FAA w/ww	1.62 mg/l
		Mercury Prep. CV	Complete ---
		Mercury, CVAA w/ww	<0.0005 mg/l
		Metals Prep. GFAA	Complete ---
		Metals Digestion w/ww	Complete ---
		Metals Prep. FAA	Complete ---
		Nickel, FAA w/ww	<0.04 mg/l
		Potassium, FAA w/ww	3.95 mg/l
		Selenium, GFAA w/ww	0.008 mg/l
		Silver, FAA w/ww	<0.01 mg/l
		Sodium, FAA w/ww	703 mg/l
		Thallium, Total GFAA w/	<0.1 mg/l
		Vanadium, FAA w/ww	0.07 mg/l
		Zinc, FAA w/ww	0.06 mg/l





Mountain States Analytical


The Quality Solution

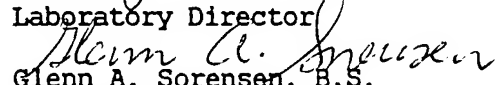
CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-
Phone: 801-272-1900 801-272-0430 (FAX)
ATTN: Mr. Bob Glascok
Project: 2208.0402 UST Site 870

Date Samples Rec'd: 09/04/92
MSAI Group No.: 7730
Sample Matrix: Aqueous
Report Date: 09/28/92
P.O. Number:

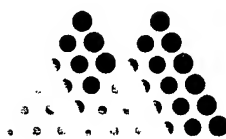
LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
31661 09/04/92	1123 T-870-MW-6-U-92-HF	Cyanide, Total w/ww	<0.005 mg/l

Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director


Glenn A. Sorensen, B.S.
Manager, Technical Operations





Mountain States Analytical

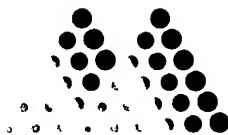
The Quality Solution

CLIENT: J.M. Montgomery Engineers
 4525 So. Wasatch #200
 Salt Lake City, UT 84124-
 Phone: 801-272-1900 801-272-0430 (FAX)
 ATTN: Mr. Robert Glascok
 Project: 2208.0402 UST Site 870

Date Samples Rec'd: 09/08/92
 MSAI Group No.: 7776
 Sample Matrix: Aqueous
 Report Date: 09/28/92
 P.O. Number:

LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
31781 09/07/92	900 T-870-MW-27-U-92-HF	Volatiles, (TCL) w/ww	See Attach ---
31782 09/07/92	905 T-870-MW-27-U-92-HF	Semi-Volatile TCL w/ww	See Attach ---
31783 09/07/92	910 T-870-MW-27-U-92-HF	Pesticides/PCBs TCL w/w	See Attach ---
31784 09/07/92	915 T-870-MW-27-U-92-HF	Aluminum, FAA w/ww	26.1 mg/l
		Antimony, FAA w/ww	<0.25 mg/l
		Arsenic, GFAA w/ww	<0.010 mg/l
		Barium, FAA w/ww	0.19 mg/l
		Beryllium, FAA w/ww	<0.005 mg/l
		Cadmium, FAA w/ww	<0.005 mg/l
		Calcium, FAA w/ww	225 mg/l
		Chromium, FAA w/ww	0.07 mg/l
		Cobalt, FAA w/ww	0.05 mg/l
		Copper, FAA w/ww	0.05 mg/l
		Iron, FAA w/ww	67.8 mg/l
		Lead, Total GFAA w/ww	<0.04 mg/l
		Magnesium, FAA w/ww	45 mg/l
		Manganese, FAA w/ww	1.13 mg/l
		Mercury Prep. CV	Complete ---
		Mercury, CVAA w/ww	<0.0005 mg/l
		Metals Prep. GFAA	Complete ---
		Metals Digestion w/ww	Complete ---
		Metals Prep. FAA	Complete ---
		Nickel, FAA w/ww	0.05 mg/l
		Potassium, FAA w/ww	0.513 mg/l
		Selenium, GFAA w/ww	<0.005 mg/l
		Silver, FAA w/ww	<0.01 mg/l
		Sodium, FAA w/ww	455 mg/l
		Thallium, GFAA w/ww	<0.002 mg/l
		Vanadium, FAA w/ww	0.15 mg/l
		Zinc, FAA w/ww	0.23 mg/l
31785 09/07/92	918 T-870-MW-27-U-92-HF	Cyanide, Total w/ww	<0.005 mg/l
31786 09/07/92	1440 T-870-MW-7-U-92-HF	Volatiles, (TCL) w/ww	See Attach ---
31787 09/07/92	1445 T-870-MW-7-U-92-HF	Semi-Volatile TCL w/ww	See Attach ---





Mountain States Analytical

The Quality Solution

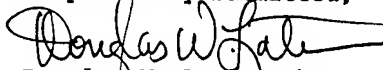
CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

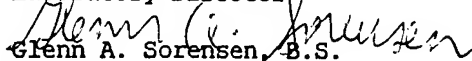
Date Samples Rec'd: 09/08/92
MSAI Group No.: 7776

ATTN: Mr. Robert Glascok
Project: 2208.0402 UST Site 870

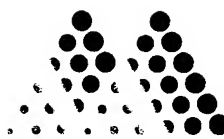
LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
31788 09/07/92 1450	T-870-MW-7-U-92-HF	Pesticides/PCBs TCL w/w See Attach ---	
31789 09/07/92 1455	T-870-MW-7-U-92-HF	Aluminum, FAA w/ww	33.6 mg/l
		Antimony, FAA w/ww	<0.25 mg/l
		Arsenic, GFAA w/ww	<0.010 mg/l
		Barium, FAA w/ww	0.20 mg/l
		Beryllium, FAA w/ww	<0.005 mg/l
		Cadmium, FAA w/ww	<0.005 mg/l
		Calcium, FAA w/ww	267 mg/l
		Chromium, FAA w/ww	0.13 mg/l
		Cobalt, FAA w/ww	0.05 mg/l
		Copper, FAA w/ww	0.07 mg/l
		Iron, FAA w/ww	75.4 mg/l
		Lead, Total GFAA w/ww	<0.04 mg/l
		Magnesium, FAA w/ww	55 mg/l
		Manganese, FAA w/ww	1.36 mg/l
		Mercury Prep. CV	Complete ---
		Mercury, CVAA w/ww	<0.0005 mg/l
		Metals Prep. GFAA	Complete ---
		Metals Digestion w/ww	Complete ---
		Metals Prep. FAA	Complete ---
		Nickel, FAA w/ww	0.05 mg/l
		Potassium, FAA w/ww	0.509 mg/l
		Selenium, GFAA w/ww	<0.005 mg/l
		Silver, FAA w/ww	<0.01 mg/l
		Sodium, FAA w/ww	456 mg/l
		Thallium, GFAA w/ww	<0.002 mg/l
		Vanadium, FAA w/ww	0.25 mg/l
		Zinc, FAA w/ww	0.29 mg/l
31790 09/07/92 1457	T-870-MW-7-U-92-HF	Cyanide, Total w/ww	<0.005 mg/l

Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director


Glenn A. Sorensen, B.S.
Manager, Technical Operations





Mountain States Analytical

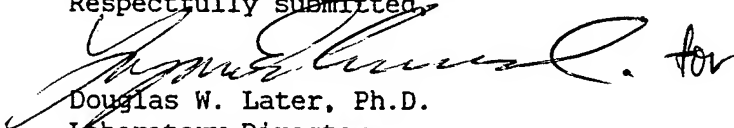
The Quality Solution

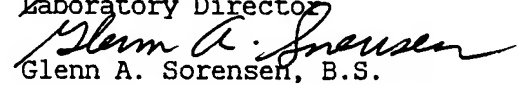
CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-
Phone: 801-272-1900 801-272-0430 (FAX)
ATTN: Mr. David Fulton
Project: HAFB UST Site 870

Date Samples Rec'd: 10/02/92
MSAI Group No.: 8810
Sample Matrix: Aqueous
Report Date: 10/20/92
P.O. Number: 2208.0402

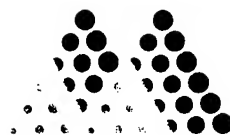
LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
34822 09/30/92	1000 CPT-7	PP Volatiles 8240 GCMS	See Attach ---
34823 09/30/92	1320 T-870-5-MW-U-92-HF	PP Volatiles 8240 GCMS	See Attach ---
34824 09/30/92	1100 T-870-27-MW-U-92-HF	PP Volatiles 8240 GCMS	See Attach ---
34825 09/30/92	1325 T-870-11-MW-U-92-HF	PP Volatiles 8240 GCMS	See Attach ---
34826 10/01/92	1200 T-870-12-MW-U-92-HF	PP Volatiles 8240 GCMS	See Attach ---
34827 10/01/92	1500 T-870-10-MW-U-92-HF	PP Volatiles 8240 GCMS	See Attach ---
34828 10/01/92	0 Trip Blank	PP Volatiles 8240 GCMS	See Attach ---

Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director


Glenn A. Sorensen, B.S.
Manager, Technical Operations





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: CPT-7

LAB NO: 34822
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1000
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/09/92

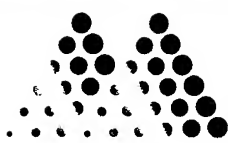
ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	* 71 ug/l	50 ug/l
Vinyl Chloride	<500 ug/l	500 ug/l
Bromomethane	<500 ug/l	500 ug/l
Chloroethane	<500 ug/l	500 ug/l
Trichlorofluoromethane	<250 ug/l	250 ug/l
Acrolein	<5,000ug/l	5,000 ug/l
1,1-Dichloroethene	<250 ug/l	250 ug/l
Methylene Chloride	<250 ug/l	250 ug/l
Acrylonitrile	<5,000ug/l	5,000 ug/l
1,1-Dichloroethane	<250 ug/l	250 ug/l
1,2-Dichloroethene (total)	<250 ug/l	250 ug/l
Chloroform	<250 ug/l	250 ug/l
1,1,1-Trichloroethane	<250 ug/l	250 ug/l
Carbon Tetrachloride	<250 ug/l	250 ug/l
Benzene	680 ug/l	250 ug/l
1,2-Dichloroethane	<250 ug/l	250 ug/l
Trichloroethene	<250 ug/l	250 ug/l
1,2-Dichloropropane	<250 ug/l	250 ug/l
Bromodichloromethane	<250 ug/l	250 ug/l
2-Chloroethylvinyl ether	<500 ug/l	500 ug/l
cis-1,3-Dichloropropene	<250 ug/l	250 ug/l
Toluene	* 34 ug/l J	50 ug/l
trans-1,3-Dichloropropene	<250 ug/l	250 ug/l
1,1,2-Trichloroethane	<250 ug/l	250 ug/l
Tetrachloroethene	* <50 ug/l	50 ug/l
Dibromochloromethane	<250 ug/l	250 ug/l
Chlorobenzene	<250 ug/l	250 ug/l
Ethylbenzene	1,400ug/l	250 ug/l
Xylenes (Total)	5,700ug/l	250 ug/l

J - estimated value

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: CPT-7

LAB NO: 34822
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1000
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/09/92

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

-Page 2-

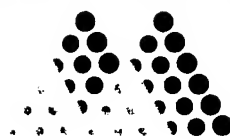
COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Bromoform	<250 ug/l	250 ug/l
1,1,2,2-Tetrachloroethane	* <50 ug/l	50 ug/l

Comment: Due to the sample matrix and level of target compounds, dilution was required. The limits of quantitation were raised accordingly. In an attempt to achieve lower detection limits for Tetrachloroethene, the sample was rerun at lower dilutions. A 5.0 ml portion could not be performed due to the excessive signal. A 1.0 ml aliquot was performed and Tetrachloroethene was not detected. The "*" compounds are from the 1.0 ml analysis. The 1.0 ml analysis was performed outside of holding time.

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-5-MW-U-92-HF

LAB NO: 34823
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1320
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/09/92

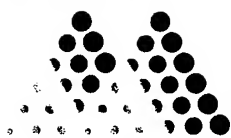
ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	J 4 ug/l	10 ug/l
Vinyl Chloride	<100 ug/l	100 ug/l
Bromomethane	<100 ug/l	100 ug/l
Chloroethane	<100 ug/l	100 ug/l
Trichlorofluoromethane	<50 ug/l	50 ug/l
Acrolein	<1,000 ug/l	1,000 ug/l
1,1-Dichloroethene	<50 ug/l	50 ug/l
Methylene Chloride	<50 ug/l	50 ug/l
Acrylonitrile	<1,000 ug/l	1,000 ug/l
1,1-Dichloroethane	<50 ug/l	50 ug/l
1,2-Dichloroethene (total)	<50 ug/l	50 ug/l
Chloroform	<50 ug/l	50 ug/l
1,1,1-Trichloroethane	<50 ug/l	50 ug/l
Carbon Tetrachloride	<50 ug/l	50 ug/l
Benzene	74 ug/l	50 ug/l
1,2-Dichloroethane	<50 ug/l	50 ug/l
Trichloroethene	<50 ug/l	50 ug/l
1,2-Dichloropropane	<50 ug/l	50 ug/l
Bromodichloromethane	<50 ug/l	50 ug/l
2-Chloroethylvinyl ether	<100 ug/l	100 ug/l
cis-1,3-Dichloropropene	<50 ug/l	50 ug/l
Toluene	<50 ug/l	50 ug/l
trans-1,3-Dichloropropene	<50 ug/l	50 ug/l
1,1,2-Trichloroethane	<50 ug/l	50 ug/l
Tetrachloroethene	J 2 ug/l	5 ug/l
Dibromochloromethane	<50 ug/l	50 ug/l
Chlorobenzene	<50 ug/l	50 ug/l
Ethylbenzene	160 ug/l	50 ug/l
Xylenes (Total)	900 ug/l	50 ug/l

J - Estimated Value

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-5-MW-U-92-HF

LAB NO: 34823
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1320
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/09/92

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

-Page 2-

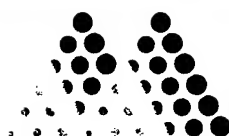
COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Bromoform	<50 ug/l	50 ug/l
1,1,2,2-Tetrachloroethane	<50 ug/l	50 ug/l

Comment: Due to the matrix and level of target compounds in the sample, dilution was required. The limits of quantitation were raised accordingly. The compounds which are reported with "J" values were taken from the original 5.0 ml analysis.

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-27-MW-U-92-HF

LAB NO: 34824
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1100
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/09/92

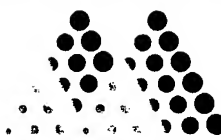
ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<100 ug/l	100 ug/l
Vinyl Chloride	<100 ug/l	100 ug/l
Bromomethane	<100 ug/l	100 ug/l
Chloroethane	<100 ug/l	100 ug/l
Trichlorofluoromethane	<50 ug/l	50 ug/l
Acrolein	<1,000 ug/l	1,000 ug/l
1,1-Dichloroethene	<50 ug/l	50 ug/l
Methylene Chloride	<50 ug/l	50 ug/l
Acrylonitrile	<1,000 ug/l	1,000 ug/l
1,1-Dichloroethane	<50 ug/l	50 ug/l
1,2-Dichloroethene (total)	<50 ug/l	50 ug/l
Chloroform	<50 ug/l	50 ug/l
1,1,1-Trichloroethane	<50 ug/l	50 ug/l
Carbon Tetrachloride	<50 ug/l	50 ug/l
Benzene	76 ug/l	50 ug/l
1,2-Dichloroethane	<50 ug/l	50 ug/l
Trichloroethene	8 ug/l	5 ug/l
1,2-Dichloropropane	<50 ug/l	50 ug/l
Bromodichloromethane	<50 ug/l	50 ug/l
2-Chloroethylvinyl ether	<100 ug/l	100 ug/l
cis-1,3-Dichloropropene	<50 ug/l	50 ug/l
Toluene	<50 ug/l	50 ug/l
trans-1,3-Dichloropropene	<50 ug/l	50 ug/l
1,1,2-Trichloroethane	<50 ug/l	50 ug/l
Tetrachloroethene	J 3 ug/l	5 ug/l
Dibromochloromethane	<50 ug/l	50 ug/l
Chlorobenzene	<50 ug/l	50 ug/l
Ethylbenzene	150 ug/l	50 ug/l
Xylenes (Total)	890 ug/l	50 ug/l

J - Estimated Value

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-27-MW-U-92-HF

LAB NO: 34824
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1100
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/09/92

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

-Page 2-

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Bromoform	<50 ug/l	50 ug/l
1,1,2,2-Tetrachloroethane	J 2 ug/l	5 ug/l

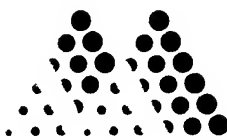
J - Estimated Value

Comment: Due to the sample matrix and level of target compounds, dilution was required. The limits of quantitation were raised accordingly. The compounds which are reported with "J" values were taken from the original 5.0 ml analysis.

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-11-MW-U-92-HF

LAB NO: 34825
GROUP NO: 8810
DATE SAMPLED: 09/30/92
TIME SAMPLED: 1325
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/14/92
DISPOSAL DATE: 11/13/92
ANALYSIS DATE: 10/09/92

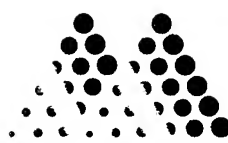
ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
Trichlorofluoromethane	<5 ug/l	5 ug/l
Acrolein	<100 ug/l	100 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Methylene Chloride	<5 ug/l	5 ug/l
Acrylonitrile	<100 ug/l	100 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	26 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
2-Chloroethylvinyl ether	<10 ug/l	10 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
Toluene	33 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	21 ug/l	5 ug/l
Xylenes (Total)	180 ug/l	5 ug/l
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-12-MW-U-92-HF

LAB NO: 34826
GROUP NO: 8810
DATE SAMPLED: 10/01/92
TIME SAMPLED: 1200
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/16/92
DISPOSAL DATE: 11/15/92
ANALYSIS DATE: 10/12/92

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

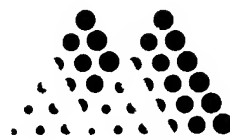
COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
Trichlorofluoromethane	<5 ug/l	5 ug/l
Acrolein	<100 ug/l	100 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Methylene Chloride	11 ug/l	5 ug/l
Acrylonitrile	<100 ug/l	100 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	10 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
2-Chloroethylvinyl ether	<10 ug/l	10 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
Toluene	<5 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	29 ug/l	5 ug/l
Xylenes (Total)	300 ug/l	5 ug/l
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

Respectfully submitted,

John G. Hayes

John G. Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: T-870-10-MW-U-92-HF

LAB NO: 34827
GROUP NO: 8810
DATE SAMPLED: 10/01/92
TIME SAMPLED: 1500
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/16/92
DISPOSAL DATE: 11/15/92
ANALYSIS DATE: 10/12/92

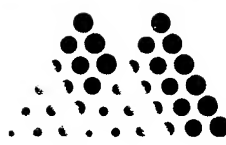
ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
Trichlorofluoromethane	<5 ug/l	5 ug/l
Acrolein	<100 ug/l	100 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Methylene Chloride	<5 ug/l	5 ug/l
Acrylonitrile	<100 ug/l	100 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	<5 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
2-Chloroethylvinyl ether	<10 ug/l	10 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
Toluene	17 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	<5 ug/l	5 ug/l
Xylenes (Total)	110 ug/l	5 ug/l
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: Trip Blank

LAB NO: 34828
GROUP NO: 8810
DATE SAMPLED: 10/01/92
TIME SAMPLED: 0
DATE RECEIVED: 10/02/92
DATE REPORTED: 10/16/92
DISPOSAL DATE: 11/15/92
ANALYSIS DATE: 10/12/92

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
Trichlorofluoromethane	<5 ug/l	5 ug/l
Acrolein	<100 ug/l	100 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Methylene Chloride	<5 ug/l	5 ug/l
Acrylonitrile	<100 ug/l	100 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	<5 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
2-Chloroethylvinyl ether	<10 ug/l	10 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
Toluene	<5 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	<5 ug/l	5 ug/l
Xylenes (Total)	<5 ug/l	5 ug/l
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group

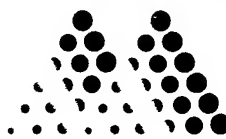


**MONTGOMERY
LABORATORIES**

CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

PROJECT/JOB #		PROJECT NAME		NO. OF CONTAINERS		REMARKS	
2208 0402		HAFB UST Site 870					
SAMPLERS: (Signature)		(Signature)					
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		
	9/30/92	1000		✓	CPT-7	✓	* Note this sample may contain free product (NAPL)
	9/30/92	1320		✓	T-870-5-MW-U-92-HF	✓	
	9/30/92	1100		✓	T-870-27-MW-U-92-HF	✓	
	9/30/92	1325		✓	T-870-11-MW-U-92-HF	✓	
	10/1/92	1200		✓	T-870-12-MW-U-92-HF	✓	
	10/1/92	1500		✓	T-870-10-MW-U-92-HF	✓	
					Trip Blank 9/30-10/1	✓	
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)		DATE / TIME	
9/30/92		1745		9/30/92		1745	
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)		DATE / TIME	
9/30/92				9/30/92			
RELINQUISHED BY: (Signature)		DATE / TIME		RECEIVED FOR LABORATORY BY: (Signature)		DATE / TIME	
9/30/92							



Mountain States Analytical

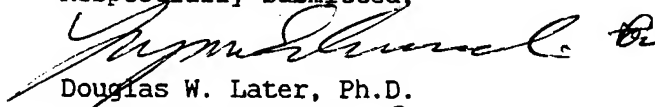
The Quality Solution

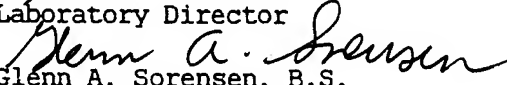
CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-
Phone: 801-272-1900 801-272-0430 (FAX)
ATTN: Mr. David Fulton
Project: UST Site 870 2208.0402

Date Samples Rec'd: 10/20/92
MSAI Group No.: 9132
Sample Matrix: Aqueous
Report Date: 10/22/92
P.O. Number:

LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
36281 10/19/92	1700 CPT-10	PP Volatiles 8240 GCMS	See Attach ---

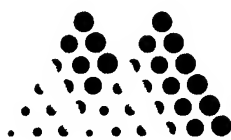
Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director


Glenn A. Sorensen, B.S.
Manager, Technical Operations

1092





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: CPT-10

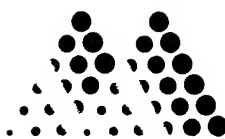
LAB NO: 36821
GROUP NO: 9132
DATE SAMPLED: 10/19/92
TIME SAMPLED: 1700
DATE RECEIVED: 10/20/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/20/92

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

COMPOUNDS	FINAL RESULTS	QUANTITATION LIMIT
Chloromethane	<10 ug/l	10 ug/l
Vinyl Chloride	<10 ug/l	10 ug/l
Bromomethane	<10 ug/l	10 ug/l
Chloroethane	<10 ug/l	10 ug/l
Trichlorofluoromethane	<5 ug/l	5 ug/l
Acrolein	<100 ug/l	100 ug/l
1,1-Dichloroethene	<5 ug/l	5 ug/l
Methylene Chloride	12 ug/l	5 ug/l
Acrylonitrile	<100 ug/l	100 ug/l
1,1-Dichloroethane	<5 ug/l	5 ug/l
1,2-Dichloroethene (total)	<5 ug/l	5 ug/l
Chloroform	<5 ug/l	5 ug/l
1,1,1-Trichloroethane	<5 ug/l	5 ug/l
Carbon Tetrachloride	<5 ug/l	5 ug/l
Benzene	<5 ug/l	5 ug/l
1,2-Dichloroethane	<5 ug/l	5 ug/l
Trichloroethene	<5 ug/l	5 ug/l
1,2-Dichloropropane	<5 ug/l	5 ug/l
Bromodichloromethane	<5 ug/l	5 ug/l
2-Chloroethylvinyl ether	<10 ug/l	10 ug/l
cis-1,3-Dichloropropene	<5 ug/l	5 ug/l
Toluene	11 ug/l	5 ug/l
trans-1,3-Dichloropropene	<5 ug/l	5 ug/l
1,1,2-Trichloroethane	<5 ug/l	5 ug/l
Tetrachloroethene	<5 ug/l	5 ug/l
Dibromochloromethane	<5 ug/l	5 ug/l
Chlorobenzene	<5 ug/l	5 ug/l
Ethylbenzene	16 ug/l	5 ug/l
Xylenes (Total)	160 ug/l	5 ug/l
Bromoform	<5 ug/l	5 ug/l
1,1,2,2-Tetrachloroethane	<5 ug/l	5 ug/l

-Continued-





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 S Wasatch #200
Salt Lake City, UT 84124

LAB NO: 36821
GROUP NO: 9132
DATE SAMPLED: 10/19/92
TIME SAMPLED: 1700
DATE RECEIVED: 10/20/92
DATE REPORTED: 10/21/92
DISPOSAL DATE: 11/20/92
ANALYSIS DATE: 10/20/92

ATTN: Mr. David Fulton

SAMPLE ID: CPT-10

ANALYSIS: Priority Pollutants by GCMS (Volatiles)
EPA Method SW-846 8240

-Page 2-

Comment: Recovery of surrogate standard, Bromofluorobenzene, was outside of QC limits. This was confirmed by reanalysis.

Respectfully submitted,

John G. Hayes, B.S.
Supervisor, GCMS Group

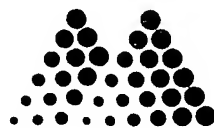


CHAIN OF CUSTODY RECORD

ANALYSIS

USE 1 COLUMN PER BOTTLE

[illegible]

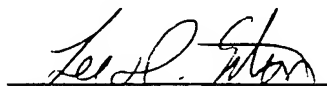
**Mountain States Analytical** *** INVOICE ****The Quality Solution*

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124-

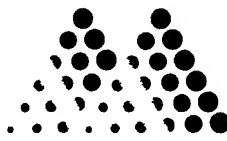
INVOICE NO: 9132
Invoice Date: 10/22/92
Date Samples Rec'd: 10/20/92
P.O. Number:

ATTN: Mr. David Fulton
PROJECT: UST Site 870 2208.0402

LAB SAMPLE NO DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RUSH CRG%	FEE
36281 10/19/92 1700	CPT-10	PP Volatiles 8240 GCMS w 80		413.10


Reviewed and Approved:

Total Due: \$ 413.10



Mountain States Analytical

The Quality Solution

CLIENT: Montgomery
4525 So. Wasatch #200
Salt Lake City, UT 84124-
Phone: 801-272-1900 801-272-0430 (FAX)
ATTN: Mr. David Fulton
Project: HAFB

Date Samples Rec'd: 11/07/91
MSAI Group No.: 4674
Sample Matrix: Non-Aqueous/Solid
Report Date: 11/14/91
P.O. Number: 2208.0312

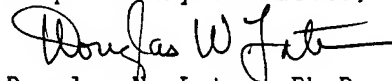
LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
22313 11/06/91	1350 SB870A-01/16'-17'	BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Moisture	See Attach --- Complete --- 21.9 %
22314 11/06/91	1400 SB870A-01/18'-19'	BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Moisture	See Attach --- Complete --- 19.4 %

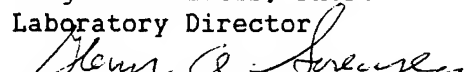
RECEIVED

NOV 20 1991

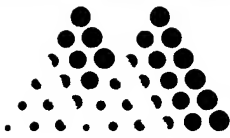
JAMES M. MONTGOMERY

Respectfully submitted,


Douglas W. Later, Ph.D.

Laboratory Director

Glenn A. Sorensen, B.S.
Manager, Technical Operations





Mountain States Analytical

The Quality Solution

CLIENT: Montgomery
4525 So. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Dave Fulton

SAMPLE ID: SB870A-01/16'-17'

LAB NO: 22313
GROUP NO: 4674
DATE SAMPLED: 11/06/91
TIME SAMPLED: 1350
DATE RECEIVED: 11/07/91
DATE REPORTED: 11/14/91
DISPOSAL DATE: 12/14/91

ANALYSIS: Total Petroleum Hydrocarbons by EPA SW-846 Methods
3550/8015 Modified [Utah]. Benzene, Toluene,
Ethylbenzene, Xylenes by EPA SW-846 Methods 5030/8020.

COMPOUNDS	RESULT DRY WEIGHT	LIMIT OF QUANTITATION
-----	-----	-----
Moisture	21.9 %	
Benzene	150 ug/kg	10.0 ug/kg
Toluene	129 ug/kg	10.0 ug/kg
Ethylbenzene	57.0 ug/kg	10.0 ug/kg
m,p-Xylene	203 ug/kg	10.0 ug/kg
o-Xylene	115 ug/kg	10.0 ug/kg
TPH	< 10.0 mg/kg	10.0 mg/kg

Date Analyzed (TPH): 11/12/91
Date Analyzed (BTEX): 11/14/91

Note:

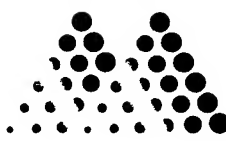
Diesel fuel calibration standards were used for TPH
quantitation.

Respectfully submitted,

Matt Breusen For

Kenneth A. Roberts, B.S.
Manager, Organics Department





Mountain States Analytical

The Quality Solution

CLIENT: Montgomery
4525 So. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. Dave Fulton

SAMPLE ID: SB870A-01/18'-19'

LAB NO: 22314
GROUP NO: 4674
DATE SAMPLED: 11/06/91
TIME SAMPLED: 1400
DATE RECEIVED: 11/07/91
DATE REPORTED: 11/14/91
DISPOSAL DATE: 12/14/91

ANALYSIS: Total Petroleum Hydrocarbons by EPA SW-846 Methods
3550/8015 Modified [Utah]. Benzene, Toluene,
Ethylbenzene, Xylenes by EPA SW-846 Methods 5030/8020.

COMPOUNDS	RESULT DRY WEIGHT	LIMIT OF QUANTITATION
-----	-----	-----
Moisture	19.4 %	
Benzene	564 ug/kg	20.0 ug/kg
Toluene	145 ug/kg	20.0 ug/kg
Ethylbenzene	341 ug/kg	20.0 ug/kg
m,p-Xylene	1,640 ug/kg	20.0 ug/kg
o-Xylene	609 ug/kg	20.0 ug/kg
TPH	98.3 mg/kg	10.0 mg/kg

Date Analyzed (TPH): 11/12/91
Date Analyzed (BTEX): 11/14/91

Note:

Diesel fuel calibration standards were used for TPH
quantitation.

Respectfully submitted,

Matt Breusen for

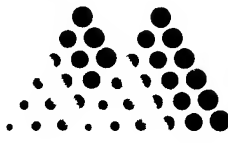
Kenneth A. Roberts, B.S.
Manager, Organics Department



CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]



Mountain States Analytical

The Quality Solution

CLIENT: Montgomery
4525 So. Wasatch #200
Salt Lake City, UT 84124
Phone: 801-272-1900 801-272-0430 (FAX)
ATTN: Mr. David Fulton
Project: HAFB

Date Samples Rec'd: 11/13/91
MSAI Group No.: 4688
Sample Matrix: Aqueous
Report Date: 11/15/91
P.O. Number: 2208.0312

LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
22374 10/17/91	0 Trip Blank	BTEX, 602, Aqueous	See Attach ---

Respectfully submitted,

Douglas W. Later, Ph.D.
Laboratory Director

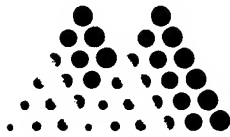
Glenn A. Sorensen, B.S.
Manager, Technical Operations

RECEIVED

NOV 19 1991

JAMES M. MONTGOMERY





Mountain States Analytical

The Quality Solution

CLIENT: Montgomery
4525 So. Wasatch #200
Salt Lake City, UT 84124

ATTN: Mr. David Fulton

SAMPLE ID: Trip Blank

LAB NO: 22374
GROUP NO: 4688
DATE SAMPLED: 10/17/91
TIME SAMPLED: 0
DATE RECEIVED: 11/13/91
DATE REPORTED: 11/15/91
DISPOSAL DATE: 12/15/91

ANALYSIS: Gasoline Contamination in Water (BTEX) [EPA 602]

COMPOUND(S)	RESULT	LIMIT OF QUANTITATION
-----	-----	-----
Benzene	< 1.0 ug/l	1.0 ug/l
Toluene	< 1.0 ug/l	1.0 ug/l
Ethylbenzene	< 1.0 ug/l	1.0 ug/l
m,p-Xylene	< 1.0 ug/l	1.0 ug/l
o-Xylene	< 1.0 ug/l	1.0 ug/l

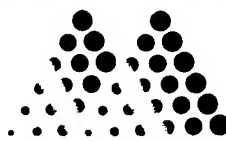
Date Analyzed: 11/12/91

Respectfully submitted,

Matt Roberts for

Kenneth A. Roberts, B.S.
Manager, Organics Department





Mountain States Analytical

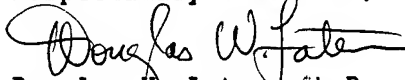
The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124
Phone: 801-272-1900 801-272-0430 (FAX)
ATTN: Mr. David Fulton
Project: HAFB

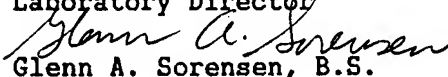
Date Samples Rec'd: 11/08/91
MSAI Group No.: 4687
Sample Matrix: Non-Aqueous/Solid
Report Date: 11/21/91
P.O. Number: 2208.0312

LAB SAMPLE NO. DATE	SAMP SAMPLE DESCRIPTION TIME	ANALYSES PERFORMED	RESULT
22369 11/07/91 1111 SB870A 02/15'-16'		BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Moisture	See Attach --- Complete --- 18.9 %
22370 11/07/91 1122 SB870A 02/17'-18'		BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Moisture	See Attach --- Complete --- 24.2 %
22371 11/07/91 1427 SB870A 03/11'-12'		BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Moisture	See Attach --- Complete --- 7.26 %
22372 11/07/91 1530 SB870A 03/19'-20'		BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Carbon, Organic TOC sw Moisture	See Attach --- Complete --- 1,100 mg/kg 20.3 %
22373 11/07/91 1630 SB870A 03/29'-30'		BTEX/TPH 8015/8020(D) Homogenization-Vol. GC Moisture	See Attach --- Complete --- 14.0 %

Respectfully submitted,

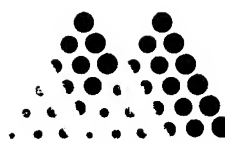

Douglas W. Later, Ph.D.

Laboratory Director


Glenn A. Sorensen, B.S.

Manager, Technical Operations





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124

LAB NO: 22369
GROUP NO: 4687
DATE SAMPLED: 11/07/91
TIME SAMPLED: 1111
DATE RECEIVED: 11/08/91
DATE REPORTED: 11/21/91
DISPOSAL DATE: 12/21/91

ATTN: Mr. David Fulton

SAMPLE ID: SB870A 02/15'16'

ANALYSIS: Total Petroleum Hydrocarbons by EPA SW-846 Methods
3550/8015 Modified [Utah]. Benzene, Toluene,
Ethylbenzene, Xylenes by EPA SW-846 Methods 5030/8020.

COMPOUNDS -----	RESULT DRY WEIGHT -----	LIMIT OF QUANTITATION -----
Moisture	18.9 %	
Benzene	43.2 ug/kg	10.0 ug/kg
Toluene	51.3 ug/kg	10.0 ug/kg
Ethylbenzene	52.2 ug/kg	10.0 ug/kg
m,p-Xylene	365 ug/kg	10.0 ug/kg
o-Xylene	92.3 ug/kg	10.0 ug/kg
TPH	23.2 mg/kg	10.0 mg/kg

Date Analyzed (TPH): 11/13/91

Date Analyzed (BTEX): 11/20/91

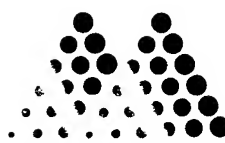
Note:

Diesel fuel calibration standards were used for TPH quantitation.

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124

LAB NO: 22370
GROUP NO: 4687
DATE SAMPLED: 11/07/91
TIME SAMPLED: 1122
DATE RECEIVED: 11/08/91
DATE REPORTED: 11/21/91
DISPOSAL DATE: 12/21/91

ATTN: Mr. David Fulton

SAMPLE ID: SB870A 02/17'18'

ANALYSIS: Total Petroleum Hydrocarbons by EPA SW-846 Methods
3550/8015 Modified [Utah]. Benzene, Toluene,
Ethylbenzene, Xylenes by EPA SW-846 Methods 5030/8020.

COMPOUNDS	RESULT DRY WEIGHT	LIMIT OF QUANTITATION
-----	-----	-----
Moisture	24.2 %	
Benzene	13.0 ug/kg	10.0 ug/kg
Toluene	60.2 ug/kg	10.0 ug/kg
Ethylbenzene	57.7 ug/kg	10.0 ug/kg
m,p-Xylene	386 ug/kg	10.0 ug/kg
o-Xylene	123 ug/kg	10.0 ug/kg
TPH	37.0 mg/kg	10.0 mg/kg

Date Analyzed (TPH): 11/13/91
Date Analyzed (BTEX): 11/20/91

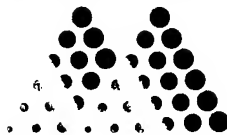
Note:

Diesel fuel calibration standards were used for TPH
quantitation.

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124

LAB NO: 22371
GROUP NO: 4687
DATE SAMPLED: 11/07/91
TIME SAMPLED: 1427
DATE RECEIVED: 11/08/91
DATE REPORTED: 11/21/91
DISPOSAL DATE: 12/21/91

ATTN: Mr. David Fulton

SAMPLE ID: SB870A 03/11'-12'

ANALYSIS: Total Petroleum Hydrocarbons by EPA
SW-846 Methods 3550/8015 Modified [Utah]
Benzene, Toluene, Ethylbenzene, Xylenes
by EPA SW-846 Methods 5030/8020

COMPOUNDS	RESULT DRY WEIGHT	LIMIT OF QUANTITATION
Moisture	7.3 %	
Benzene	9,400 ug/kg	5,000 ug/kg
Toluene	115,000 ug/kg	5,000 ug/kg
Ethylbenzene	66,700 ug/kg	5,000 ug/kg
m,p-Xylene	494,000 ug/kg	5,000 ug/kg
o-Xylene	140,000 ug/kg	5,000 ug/kg
TPH	2,790 mg/kg	200 mg/kg

Date Analyzed (TPH): 11/13/91
Date Analyzed (BTEX): 11/20/91

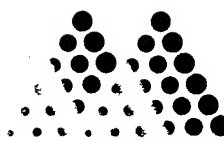
Note:

- A. Gasoline calibration standards were used for TPH quantitation.

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124

LAB NO: 22372
GROUP NO: 4687
DATE SAMPLED: 11/07/91
TIME SAMPLED: 1530
DATE RECEIVED: 11/08/91
DATE REPORTED: 11/21/91
DISPOSAL DATE: 12/21/91

ATTN: Mr. David Fulton

SAMPLE ID: SB870A 03/19'-20'

ANALYSIS: Total Petroleum Hydrocarbons by EPA SW-846 Methods
3550/8015 Modified [Utah]. Benzene, Toluene,
Ethylbenzene, Xylenes by EPA SW-846 Methods 5030/8020.

COMPOUNDS	RESULT DRY WEIGHT	LIMIT OF QUANTITATION
-----	-----	-----
Moisture	20.3 %	
Benzene	338 ug/kg	10.0 ug/kg
Toluene	595 ug/kg	10.0 ug/kg
Ethylbenzene	138 ug/kg	10.0 ug/kg
m,p-Xylene	867 ug/kg	10.0 ug/kg
o-Xylene	276 ug/kg	10.0 ug/kg
TPH	< 10.0 mg/kg	10.0 mg/kg

Date Analyzed (TPH): 11/13/91
Date Analyzed (BTEX): 11/20/91

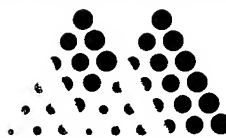
Note:

Diesel fuel calibration standards were used for TPH quantitation.

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department





Mountain States Analytical

The Quality Solution

CLIENT: J.M. Montgomery Engineers
4525 So. Wasatch #200
Salt Lake City, UT 84124

LAB NO: 22373
GROUP NO: 4687
DATE SAMPLED: 11/07/91
TIME SAMPLED: 1630
DATE RECEIVED: 11/08/91
DATE REPORTED: 11/21/91
DISPOSAL DATE: 12/21/91

ATTN: Mr. David Fulton

SAMPLE ID: SB870A 03/29'-30'

ANALYSIS: Total Petroleum Hydrocarbons by EPA
SW-846 Methods 3550/8015 Modified [Utah]
Benzene, Toluene, Ethylbenzene, Xylenes
by EPA SW-846 Methods 5030/8020

COMPOUNDS -----	RESULT DRY WEIGHT -----	LIMIT OF QUANTITATION -----
Moisture	14.0 %	
Benzene	22,200 ug/kg	5,000 ug/kg
Toluene	187,000 ug/kg	5,000 ug/kg
Ethylbenzene	83,100 ug/kg	5,000 ug/kg
m,p-Xylene	567,000 ug/kg	5,000 ug/kg
o-Xylene	177,000 ug/kg	5,000 ug/kg
TPH	15,100 mg/kg	1,000 mg/kg

Date Analyzed (TPH): 11/13/91
Date Analyzed (BTEX): 11/20/91

Note:

- A. Gasoline calibration standards were used for TPH quantitation.

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department



CHAIN OF CUSTODY RECORD

ANALYSIS
USE 1 COLUMN PER BOTTLE

[illegible]

1-800-
2-MONTGOMERY
-4-155

Telephone
913 796 9141

555 East Walnut Street
P.O. Box 7009
Pasadena, California
91109 7009

Montgomery Laboratories



August 14, 1992

James M. Montgomery Consulting Engineers, Inc.
4525 S. Wasatch Blvd, Suite 200
Salt Lake City, UT 84124
Attn: Dave Fulton

Dear Dave,

Enclosed please find data deliverables for the recent Hill AFB project. A detailed quality control (QC) summary follows :

Non-conformance (LCS,MS/MSD,Surrogates, and Holding Times):

No problems encountered.

Samples requiring dilution (with increased MRL's):

Sample CPT-7 was diluted 1/1000, and sample SGS-1 was diluted 1/10 for VOC analysis.

Method blanks with compounds detected:

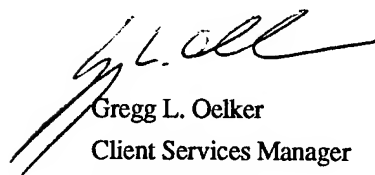
All compounds were ND

Other Comments:

None

If you have any questions regarding this data package please feel free to call.

Sincerely,


Gregg L. Oelker
Client Services Manager
Report #: 2253



MONTGOMERY LABORATORIES

555 East Walnut Street, P.O. Box 7009
Pasadena, California 91109-7009
(818) 796-9141

Laboratory Report

for

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City, UT 84214

Attention: Dave Fulton

MONTGOMERY LABORATORIES
Submitted on

AUG 14 1992

GLO

Report#: 2253

HCB
8/10/72
G/O

CLIENT CODE H11-COE

GROUP # 2253

QUOTATION #

REPORT/BILLING ADDRESS**FAX:**

QUOTATION #

FAX:

SAMPLE FIELD COMMENTS

UNIT	PRICE
------	-------

2) Ca^{2+} A PP

92080001
92080002

PT-7

SGS-1

$$\begin{array}{r} 15:00 \\ \hline 15:20 \end{array}$$

2/8

$$\frac{\infty}{\infty}$$

CHAIN OF CUSTODY

DUE DATE

EXPECTED ARRIVAL DATE

CIRCLE MATRIX: POTABLE WATER, GROUND/SURFACE WATER, WASTE WATER, OIL, SOIL/SLUDGE, OTHER :

HAZARDOUS (TYPE OF HAZARD)

EXPECTED ARRIVAL DATE

Special Shipping Charges:

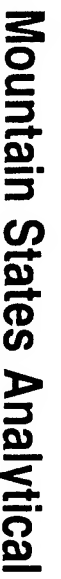
Turnaround Time:

OTHER:

OTHER COMMENTS, CHARGES

Disposal Options: RETURN 1 AB BACK NO SPECIAL

Turnaround Time Surcharge:



Sample Chain of Custody

[illegible]

MONTGOMERY LABORATORIES COOLER RECEIPT FORM

PROJECT: HILL AFB 2208.0403 Date Received: 8/8/92
 Use other side of this form to note further details concerning check-in problems and to describe any action(s) regarding the resolution(s) of problems.

A. PRELIMINARY EXAMINATION: Date cooler opened: 8/8/92
 by (print) Melissa Hudson (sign) Melissa Hudson

1. Did cooler come with shipping slip (air bill, etc.)? Yes No
 If YES, attach & enter carrier and air bill # here: _____

2. Were custody seals on outside of cooler? NA Yes No
 If YES, how many & where: _____
 If Yes, enter the following: seal date: _____, seal name: _____

3. Were custody seals unbroken & intact at delivery? Yes No

4. Were custody papers sealed in bag & taped to lid? Yes No

5. Were custody papers filled out properly (ink, etc.) Yes No

6. Did you sign custody papers in appropriate place? Yes No

7. Was project identifiable from custody papers? Yes No

8. Have designated person(s) initial to acknowledge receipt: go (date) 8/11/92

B. LOG-IN PHASE: Date samples were logged-in: 8/10/92 by:
 (print) Melissa Hudson (sign) Melissa Hudson

9. Describe packing: Secure

10. If required, was enough ice used? Yes No

11. Were all bottles sealed in separate plastic bags? Yes No

12. Did all bottles arrive unbroken/in good condition? Yes No

13. Were all bottle labels complete (ID,date,sign,pres)? Yes No

14. Did all bottle labels agree with custody papers?
 If NO, indicate discrepancies on back. Yes No

15. Were correct containers used for the analytes? Yes No

16. Were correct preservatives used when required? Yes No

17. Was sufficient amount of sample sent for tests? Yes No

18. Bubbles absent in VOA vials?
 If NO, list by sample id on back. CPT-7 has bubble in both vials Yes No

19. Was Client Services informed of problems? Yes No

Montgomery Laboratories
555 E. Walnut Street, Pasadena, CA 91109
PHONE: 818-568-6400/FAX: 818-568-6324

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Acct#: HILL-COE
PO#: 2208.0403

Salt Lake City, UT 84214
Attn: Dave Fulton

The following samples were received from you on 08/08/92. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Montgomery Laboratories.

Sample#	Sample Identification	Tests Scheduled
920810001	ID:CPT-7	MATRIX: 1
	@VOAPP	DATE: 08/07/92
920810002	ID:SGS-1	MATRIX: 1
	@VOAPP	DATE: 08/07/92

Test Acronym	Description
@VOAPP	Volatile Organics HSL

MONTGOMERY LABORATORIES

555 East Walnut Street, P.O. Box 7009
Pasadena, California 91109-7009
(818) 796-9141

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City, UT 84214
ATTN: Dave Fulton

Sample # 920810001 Sample ID CPT-7 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240)

Parameter	Units	Result	%Rec Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
1,1,2-Trichloroethane (1,1,2-T)	ug/l	ND		1000	500			13-aug-1992	jhc
1,1-Dichloroethylene (1,1DCE)	ug/l	ND		1000	500			13-aug-1992	jhc
1,1-Dichloroethane	ug/l	ND		1000	500			13-aug-1992	jhc
1,2-Dichlorobenzene	ug/l	ND		1000	500			13-aug-1992	jhc
1,2-Dichloroethane	ug/l	ND		1000	500			13-aug-1992	jhc
1,2-Dichloropropane	ug/l	ND		1000	500			13-aug-1992	jhc
1,3-Dichlorobenzene	ug/l	ND		1000	500			13-aug-1992	jhc
1,4-Dichlorobenzene (p-DCB)	ug/l	ND		1000	500			13-aug-1992	jhc
2-Butanone (MEK)	ug/l	ND		1000	10000			13-aug-1992	jhc
2-Chloroethylvinylether	ug/l	ND		1000	1000			13-aug-1992	jhc
2-Hexanone	ug/l	ND		1000	10000			13-aug-1992	jhc
4-Methyl-2-Pentanone (MIBK)	ug/l	ND		1000	1000			13-aug-1992	jhc
Acetone	ug/l	ND		1000	10000			13-aug-1992	jhc
Acrolein	ug/l	ND		1000	1000			13-aug-1992	jhc
Acrylonitrile	ug/l	ND		1000	1000			13-aug-1992	jhc
Benzene	ug/l	ND		1000	500			13-aug-1992	jhc
cis-1,2-Dichloroethene	ug/l	ND		1000	500			13-aug-1992	jhc
Chlorobenzene	ug/l	ND		1000	500			13-aug-1992	jhc
cis-1,3-Dichloropropene	ug/l	ND		1000	500			13-aug-1992	jhc
Bromoform	ug/l	ND		1000	500			13-aug-1992	jhc
Chloroform (Trichloromethane)	ug/l	ND		1000	500			13-aug-1992	jhc
Chloroethane	ug/l	ND		1000	1000			13-aug-1992	jhc
Carbon disulfide	ug/l	ND		1000	500			13-aug-1992	jhc
Carbon Tetrachloride	ug/l	ND		1000	500			13-aug-1992	jhc
Dibromochloromethane	ug/l	ND		1000	500			13-aug-1992	jhc
Dichlorobromomethane	ug/l	ND		1000	500			13-aug-1992	jhc
Ethyl benzene	ug/l	1800		1000	500			13-aug-1992	jhc
Methyl Bromide	ug/l	ND		1000	1000			13-aug-1992	jhc
Methyl Chloride	ug/l	ND		1000	1000			13-aug-1992	jhc

Report #: 2253



MONTGOMERY LABORATORIES

555 East Walnut Street, P.O. Box 7009
Pasadena, California 91109-7009
(818) 796-9141

Sample # 920810001 Sample ID CPI-7 Project VOA

Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL

(ML/SW 8240)

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City , UT 84214
ATTN: Dave Fulton

Parameter	Units	Result	%Rec Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
Methylene Chloride	ug/l	ND		1000	3000			13-aug-1992	jhc
m,p-Xylenes	ug/l	4600		1000	500			13-aug-1992	jhc
o-Xylene	ug/l	1900		1000	500			13-aug-1992	jhc
1,1,2,2-Tetrachloroethane	ug/l	ND		1000	500			13-aug-1992	jhc
Tetrachloroethylene (PCE)	ug/l	ND		1000	500			13-aug-1992	jhc
Styrene	ug/l	ND		1000	500			13-aug-1992	jhc
trans-1,2-Dichloroethene	ug/l	ND		1000	500			13-aug-1992	jhc
1,1,1-Trichloroethane	ug/l	ND		1000	500			13-aug-1992	jhc
Trichloroethylene (TCE)	ug/l	ND		1000	500			13-aug-1992	jhc
Trichlorofluoromethane	ug/l	ND		1000	1000			13-aug-1992	jhc
trans-1,3-Dichloropropene	ug/l	ND		1000	500			13-aug-1992	jhc
Tetrahydrofuran	ug/l	ND		1000	10000			13-aug-1992	jhc
Toluene	ug/l	ND		1000	500			13-aug-1992	jhc
Vinyl Chloride (VC)	ug/l	ND		1000	1000			13-aug-1992	jhc
Vinyl Acetate	ug/l	ND		1000	10000			13-aug-1992	jhc

Report #: 2253



Laboratory Report

Salt Lake City , UT 84214
ATTN: Dave Fulton

Sample # 920810001 Sample ID CPT-7 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240)
 Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
Toluene-d8	101	88 - 110
1,2-Dichloroethane-d4	90	76 - 114
4-Bromofluorobenzene	101	86 - 115

Report #: 2253



MONTGOMERY LABORATORIES

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Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City , UT 84214
ATTN: Dave Fulton

Sample # 920810001 Sample ID CPT-7 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240) Quality Control

Control	Parameter	Units	Actual	Found	%Recv
LCS1	1,1-Dichloroethylene (1,1DCE)	ug/l	4	3.82	96
LCS1	Benzene	ug/l	4	4.52	113
LCS1	Chlorobenzene	ug/l	4	3.70	92
LCS1	Trichloroethylene (TCE)	ug/l	4	3.77	94
LCS1	Toluene	ug/l	4	4.02	100
LCS2	1,1-Dichloroethylene (1,1DCE)	ug/l	4	3.99	100
LCS2	Benzene	ug/l	4	4.48	112
LCS2	Chlorobenzene	ug/l	4	3.50	88
LCS2	Trichloroethylene (TCE)	ug/l	4	3.62	90
LCS2	Toluene	ug/l	4	3.92	98
MBLK	1,1,2-Trichloroethane (1,1,2-T	ug/l	ND	ND	
MBLK	1,1-Dichloroethylene (1,1DCE)	ug/l	ND	ND	
MBLK	1,1-Dichloroethane	ug/l	ND	ND	
MBLK	1,2-Dichlorobenzene	ug/l	ND	ND	
MBLK	1,2-Dichloroethane	ug/l	ND	ND	
MBLK	1,2-Dichloropropane	ug/l	ND	ND	
MBLK	1,3-Dichlorobenzene	ug/l	ND	ND	
MBLK	1,4-Dichlorobenzene (p-DCB)	ug/l	ND	ND	
MBLK	2-Butanone (MEK)	ug/l	ND	ND	
MBLK	2-Chloroethylvinylether	ug/l	ND	ND	
MBLK	2-Hexanone	ug/l	ND	ND	
MBLK	4-Methyl-2-Pentanone (MIBK)	ug/l	ND	ND	
MBLK	Acetone	ug/l	ND	ND	
MBLK	Acrolein	ug/l	ND	ND	
MBLK	Acrylonitrile	ug/l	ND	ND	
MBLK	Benzene	ug/l	ND	ND	
MBLK	cis-1,2-Dichloroethene	ug/l	ND	ND	
MBLK	Chlorobenzene	ug/l	ND	ND	
MBLK	cis-1,3-Dichloropropene	ug/l	ND	ND	
MBLK	Bromoform	ug/l	ND	ND	
MBLK	Chloroform (Trichloromethane)	ug/l	ND	ND	

Report #: 2253



MONTGOMERY LABORATORIES

555 East Walnut Street, P.O. Box 7009
Pasadena, California 91109-7009
(818) 796-9141

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City , UT 84214
ATTN: Dave Fulton

Sample # 920810001 Sample ID CPT-7 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240) Quality Control

Control	Parameter	Units	Actual	Found	%Recv
MBLK	Chloroethane	ug/l	ND	ND	
MBLK	Carbon disulfide	ug/l	ND	ND	
MBLK	Carbon Tetrachloride	ug/l	ND	ND	
MBLK	Dibromochloromethane	ug/l	ND	ND	
MBLK	Dichlorobromomethane	ug/l	ND	ND	
MBLK	Ethyl benzene	ug/l	ND	ND	
MBLK	Methyl Bromide	ug/l	ND	ND	
MBLK	Methyl Chloride	ug/l	ND	ND	
MBLK	Methylene Chloride	ug/l	ND	ND	
MBLK	m,p-Xylenes	ug/l	ND	ND	
MBLK	o-Xylene	ug/l	ND	ND	
MBLK	1,1,2,2-Tetrachloroethane	ug/l	ND	ND	
MBLK	Tetrachloroethylene (PCE)	ug/l	ND	ND	
MBLK	Styrene	ug/l	ND	ND	
MBLK	trans-1,2-Dichloroethene	ug/l	ND	ND	
MBLK	1,1,1-Trichloroethane	ug/l	ND	ND	
MBLK	Trichloroethylene (TCE)	ug/l	ND	ND	
MBLK	Trichlorofluoromethane	ug/l	ND	ND	
MBLK	trans-1,3-Dichloropropene	ug/l	ND	ND	
MBLK	Tetrahydrofuran	ug/l	ND	ND	
MBLK	Toluene	ug/l	ND	ND	
MBLK	Vinyl Chloride (VC)	ug/l	ND	ND	
MBLK	Vinyl Acetate	ug/l	ND	ND	
MS	1,1-Dichloroethylene (1,1DCE)	ug/l	4	NA	
MS	Benzene	ug/l	4	NA	
MS	Chlorobenzene	ug/l	4	NA	
MS	Trichloroethylene (TCE)	ug/l	4	NA	
MS	Toluene	ug/l	4	NA	
MSD	1,1-Dichloroethylene (1,1DCE)	ug/l	4	NA	
MSD	Benzene	ug/l	4	NA	
MSD	Chlorobenzene	ug/l	4	NA	

Report #: 2253

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City , UT 84214
ATTN: Dave Fulton

Sample # 920810001 Sample ID CPT-7 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240)
Quality Control

[illegible]

Report #: 2253

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City, UT 84214
ATTN: Dave Fulton

Sample # 920810002 Sample ID SGS-1 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240)

Parameter	Units	Result	%Rec Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
1,1,2-Trichloroethane (1,1,2-T)	ug/l	ND		10	5			12-aug-1992	dfi
1,1-Dichloroethylene (1,1DCE)	ug/l	ND		10	5			12-aug-1992	dfi
1,1-Dichloroethane	ug/l	ND		10	5			12-aug-1992	dfi
1,2-Dichlorobenzene	ug/l	ND		10	5			12-aug-1992	dfi
1,2-Dichloroethane	ug/l	ND		10	5			12-aug-1992	dfi
1,2-Dichloropropane	ug/l	ND		10	5			12-aug-1992	dfi
1,3-Dichlorobenzene	ug/l	ND		10	5			12-aug-1992	dfi
1,4-Dichlorobenzene (p-DCB)	ug/l	ND		10	5			12-aug-1992	dfi
2-Butanone (NEK)	ug/l	ND		10	100			12-aug-1992	dfi
2-Chloroethylvinylether	ug/l	ND		10	10			12-aug-1992	dfi
2-Hexanone	ug/l	ND		10	100			12-aug-1992	dfi
4-Methyl-2-Pentanone (MIBK)	ug/l	ND		10	10			12-aug-1992	dfi
Acetone	ug/l	ND		10	100			12-aug-1992	dfi
Acrolein	ug/l	ND		10	10			12-aug-1992	dfi
Acrylonitrile	ug/l	ND		10	10			12-aug-1992	dfi
Benzene	ug/l	7.7		10	5			12-aug-1992	dfi
cis-1,2-Dichloroethane	ug/l	ND		10	5			12-aug-1992	dfi
Chlorobenzene	ug/l	ND		10	5			12-aug-1992	dfi
cis-1,3-Dichloropropene	ug/l	ND		10	5			12-aug-1992	dfi
Bromoform	ug/l	ND		10	5			12-aug-1992	dfi
Chloroform (Trichloromethane)	ug/l	ND		10	5			12-aug-1992	dfi
Chloroethane	ug/l	ND		10	10			12-aug-1992	dfi
Carbon disulfide	ug/l	ND		10	5			12-aug-1992	dfi
Carbon Tetrachloride	ug/l	ND		10	5			12-aug-1992	dfi
Dibromochloromethane	ug/l	ND		10	5			12-aug-1992	dfi
Dichlorobromomethane	ug/l	ND		10	5			12-aug-1992	dfi
Ethyl benzene	ug/l	5.5		10	5			12-aug-1992	dfi
Methyl Bromide	ug/l	ND		10	10			12-aug-1992	dfi
Methyl Chloride	ug/l	ND		10	10			12-aug-1992	dfi

Report #: 2253



MONTGOMERY LABORATORIES

555 East Walnut Street, P.O. Box 7009
Pasadena, California 91109-7009
(818) 796-9141

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Sample # 920810002 Sample ID SGS-1 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Salt Lake City, UT 84214
ATTN: Dave Fulton

Volatile Organics HSL (ML/SW 8240)

Parameter	Units	Result	%Rec Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
Methylene Chloride	ug/l	ND		10	30			12-aug-1992	dfi
m,p-Xylenes	ug/l	8.8		10	5			12-aug-1992	dfi
o-Xylene	ug/l	19		10	5			12-aug-1992	dfi
1,1,2,2-Tetrachloroethane	ug/l	ND		10	5			12-aug-1992	dfi
Tetrachloroethylene (PCE)	ug/l	18		10	5			12-aug-1992	dfi
Styrene	ug/l	ND		10	5			12-aug-1992	dfi
trans-1,2-Dichloroethane	ug/l	ND		10	5			12-aug-1992	dfi
1,1,1-Trichloroethane	ug/l	ND		10	5			12-aug-1992	dfi
Trichloroethylene (TCE)	ug/l	ND		10	5			12-aug-1992	dfi
Trichlorofluoromethane	ug/l	ND		10	10			12-aug-1992	dfi
trans-1,3-Dichloropropene	ug/l	ND		10	5			12-aug-1992	dfi
Tetrahydrofuran	ug/l	ND		10	100			12-aug-1992	dfi
Toluene	ug/l	ND		10	5			12-aug-1992	dfi
Vinyl Chloride (VC)	ug/l	ND		10	10			12-aug-1992	dfi
Vinyl Acetate	ug/l	ND		10	100			12-aug-1992	dfi



MONTGOMERY LABORATORIES

555 East Walnut Street, P.O. Box 7009
Pasadena, California 91109-7009
(818) 796-9141

Laboratory Report

Hill Air Force Base/JMM-SLC
4525 Wasatch Blvd

Salt Lake City , UT 84214
ATTN: Dave Fulton

Sample # 920810002 Sample ID SGS-1 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240) Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
Toluene-d8	94	88 - 110
1,2-Dichloroethane-d4	78	76 - 114
4-Bromofluorobenzene	104	86 - 115

Report #: 2253



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Salt Lake City , UT 84214
ATTN: Dave Fulton

Sample # 920810002 Sample ID SGS-1 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240) Quality Control

Control	Parameter	Units	Actual	Found	%Recv
LCS1	1,1-Dichloroethylene (1,1DCE)	ug/l	4	3.82	96
LCS1	Benzene	ug/l	4	4.52	113
LCS1	Chlorobenzene	ug/l	4	3.70	92
LCS1	Trichloroethylene (TCE)	ug/l	4	3.77	94
LCS1	Toluene	ug/l	4	4.02	100
LCS2	1,1-Dichloroethylene (1,1DCE)	ug/l	4	3.99	100
LCS2	Benzene	ug/l	4	4.48	112
LCS2	Chlorobenzene	ug/l	4	3.50	88
LCS2	Trichloroethylene (TCE)	ug/l	4	3.62	90
LCS2	Toluene	ug/l	4	3.92	98
MBLK	1,1,2-Trichloroethane (1,1,2-T	ug/l	ND	ND	
MBLK	1,1-Dichloroethylene (1,1DCE)	ug/l	ND	ND	
MBLK	1,1-Dichloroethane	ug/l	ND	ND	
MBLK	1,2-Dichlorobenzene	ug/l	ND	ND	
MBLK	1,2-Dichloroethane	ug/l	ND	ND	
MBLK	1,2-Dichloropropane	ug/l	ND	ND	
MBLK	1,3-Dichlorobenzene	ug/l	ND	ND	
MBLK	1,4-Dichlorobenzene (p-DCB)	ug/l	ND	ND	
MBLK	2-Butanone (MEK)	ug/l	ND	ND	
MBLK	2-Chloroethylvinylether	ug/l	ND	ND	
MBLK	2-Hexanone	ug/l	ND	ND	
MBLK	4-Methyl-2-Pentanone (MIBK)	ug/l	ND	ND	
MBLK	Acetone	ug/l	ND	ND	
MBLK	Acrolein	ug/l	ND	ND	
MBLK	Acrylonitrile	ug/l	ND	ND	
MBLK	Benzene	ug/l	ND	ND	
MBLK	cis-1,2-Dichloroethene	ug/l	ND	ND	
MBLK	Chlorobenzene	ug/l	ND	ND	
MBLK	cis-1,3-Dichloropropene	ug/l	ND	ND	
MBLK	Bromoform	ug/l	ND	ND	
MBLK	Chloroform (Trichloromethane)	ug/l	ND	ND	

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Salt Lake City , UT 84214

ATTN: Dave Fulton

Sample # 920810002 Sample ID SGS-1 Project VOA
Sample Type Water Sampled 07-aug-1992 Received 08-aug-1992 Reported 14-aug-1992

Volatile Organics HSL (ML/SW 8240) Quality Control

Control	Parameter	Units	Actual	Found	%Recv
MBLK	Chloroethane	ug/l	ND	ND	
MBLK	Carbon disulfide	ug/l	ND	ND	
MBLK	Carbon Tetrachloride	ug/l	ND	ND	
MBLK	Dibromochloromethane	ug/l	ND	ND	
MBLK	Dichlorobromomethane	ug/l	ND	ND	
MBLK	Ethyl benzene	ug/l	ND	ND	
MBLK	Methyl Bromide	ug/l	ND	ND	
MBLK	Methyl Chloride	ug/l	ND	ND	
MBLK	Methylene Chloride	ug/l	ND	ND	
MBLK	m,p-Xylenes	ug/l	ND	ND	
MBLK	o-Xylene	ug/l	ND	ND	
MBLK	1,1,2,2-Tetrachloroethane	ug/l	ND	ND	
MBLK	Tetrachloroethylene (PCE)	ug/l	ND	ND	
MBLK	Styrene	ug/l	ND	ND	
MBLK	trans-1,2-Dichloroethene	ug/l	ND	ND	
MBLK	1,1,1-Trichloroethane	ug/l	ND	ND	
MBLK	Trichloroethylene (TCE)	ug/l	ND	ND	
MBLK	Trichlorofluoromethane	ug/l	ND	ND	
MBLK	trans-1,3-Dichloropropene	ug/l	ND	ND	
MBLK	Tetrahydrofuran	ug/l	ND	ND	
MBLK	Toluene	ug/l	ND	ND	
MBLK	Vinyl Chloride (VC)	ug/l	ND	ND	
MBLK	Vinyl Acetate	ug/l	ND	ND	
MS	1,1-Dichloroethylene (1,1DCE)	ug/l	4	NA	
MS	Benzene	ug/l	4	NA	
MS	Chlorobenzene	ug/l	4	NA	
MS	Trichloroethylene (TCE)	ug/l	4	NA	
MS	Toluene	ug/l	4	NA	
MSD	1,1-Dichloroethylene (1,1DCE)	ug/l	4	NA	
MSD	Benzene	ug/l	4	NA	
MSD	Chlorobenzene	ug/l	4	NA	

Report #: 2253



Laboratory Report

Salt Lake City , UT 84214
ATTN: Dave Fulton

Volatile Organics HSL (ML/SW 8240)
Quality Control

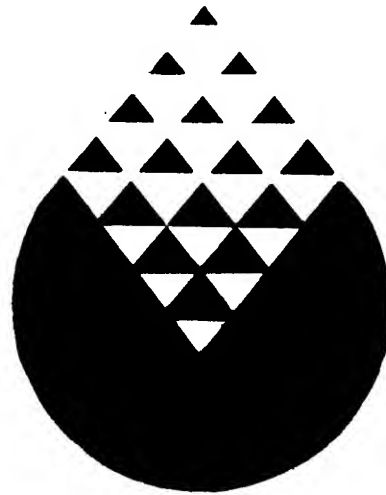
Report #: 2253

APPENDIX F
CPT SUMMARY REPORT

***Environmental Site Assessment
Bldg. 870 / Patriot Hills Area
Hill Air Force Base, Utah***

Prepared For

JMM James M. Montgomery
Consulting Engineers, Inc.



October 1992

Prepared By

TERRA TECHNOLOGIES – SOUTHWEST, INC.

TERRA TECHNOLOGIES - SOUTHWEST, INC.

*Geotechnical & Environmental Site Investigations
Advanced In-Situ Technical Services*

October 30, 1992
92-1016

James M. Montgomery Consulting Engineers, Inc.
4525 South Wasatch Blvd., Suite 200
Salt Lake City, Utah 84124

Attention: Mr. David A. Fulton
Project Manager

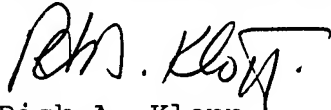
Reference: Environmental Site Assessment
Building 870 / Patriot Hills Area
Hill Air Force Base, Utah

Gentlemen:

Please find attached herewith four copies of our final report for the above referenced program. We have incorporated your comments to our draft report dated 09 October, 1992. As requested, this report consists of a factual presentation of data only. As such, any interpretation of the data and resulting conclusions and recommendations have been minimized.

Should you have any questions concerning the enclosed report or desire additional information, please do not hesitate to contact us.

Very truly yours,
TERRA TECHNOLOGIES - SOUTHWEST, INC.


Rick A. Klopp
President

Attachment:

RAK:smk

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DEFINITION OF TERMS

Aliquot. One of a number of equal-sized portions of a water sample that is being analyzed.

Aquifer. For this report, it is the formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water when pumped. Perched aquifers are not relevant to this study and the aquifer is considered to be unconfined.

Capillary Fringe. The zone immediately above the water table where water is drawn upward by capillary attraction.

Concentration. The weight of dissolved solids or sediment per unit volume of water expressed in micrograms per liter (ug/l or ppb) or milligrams per liter (mg/l or ppm). Concentration is also utilized for ground water quality and can be referenced to either weight or volume.

Cone Of Depression. The area around a discharging well where the hydraulic head in the aquifer has been lowered by pumping.

DIPE. Acronym for di-isopropyl ether

Direct Precipitation. Water that falls directly on a given surface without passing through any land phase of the runoff cycle.

Discharge Velocity. An apparent velocity, calculated from Darcy's Law, which represents the flow rate at which water moving through an aquifer if the aquifer were an open conduit. Also referred to as specific discharge.

Dispersion. The process by which groundwater containing a solute is diluted with uncontaminated ground water as it moves through an aquifer.

Drawdown. A lowering of the water table in an unconfined aquifer or the potentiometric surface in a confined aquifer caused by the pumping of ground water from wells.

Equivalent Density (Eq-Dr). The mass or quantity of a substance per unit volume based on a theoretical maximum of 100% and a minimum of 0%. Most soils are in the range of 60 to 80 percent.

Fs. Acronym for the local friction or drag measured during a cone penetration test.

DEFINITION OF TERMS (CONTINUED)

Hydraulic Conductivity. The volume of water at the prevailing kinematic viscosity that will move in a unit time under a unit hydraulic gradient through a unit area measured at right angles to the direction of flow. In general terms, hydraulic conductivity is the ability of a porous media to transmit water.

Hydraulic Gradient. The change in total head with a change in distance in a given direction. The direction is that which yields a maximum rate of decrease in head.

Infiltration. The flow of water downward from the land surface into and through the upper unsaturated soil layers.

Isopleth. An imaginary line connecting points of equal quantity, ie. potentiometric surface, benzene concentration, or CPT friction ratio.

Isotropy. The condition in which hydraulic properties of an aquifer are equal in all directions.

Kinematic Viscosity. The ratio of dynamic viscosity to mass density. It is obtained by dividing dynamic viscosity by the fluid density. Units are typically square meters per second.

MTBE. Acronym for methyl tert-butyl ether

Nk. A derived relationship between the undrained shear strength of a soil and the measured tip resistance.

Nanogram/Cubic Centimeter (ng/cc). A measure of concentration equivalent to a part per billion.

PPBV And PPMV. A unit of concentration, either a part per billion (ug/l) or a part per million (mg/l) expressed as a percentage by volume to a known standard.

PPBW And PPMW. A unit of concentration, either a part per billion (ug/l) or a part per million (mg/l) expressed as a percentage by weight to a known standard.

Phi Angle (PHI). The angle of internal friction within a homogeneous soil mass. The flow of water is directly related to the phi angle of a soil given uniform hydraulic conditions

PID. Acronym for photo-ionization detector.

Porosity. The ratio of the volume of void spaces in a rock or sediment to the total volume.

DEFINITION OF TERMS (CONTINUED)

Potentiometric Surface. In an aquifer, it is the level to which water will rise in tightly cased wells. More than one potentiometric surface is required to describe the distribution of head. The ground water table is a particular potentiometric surface.

Qc. Acronym for the measured tip resistance from the cone penetrometer uncorrected for unequal end area affects.

Rf. Acronym for the friction ratio of a soil. It is expressed as a percentage of local friction (F_s) divided by the tip resistance (Q_c) multiplied by 100.

Radial Flow. The flow of water in an aquifer toward a vertically oriented well.

SPT. Acronym for standard penetration test.

Saturated Zone. The zone in which the voids in the soil are filled with water at a pressure greater than atmospheric. The water table is the top of the saturated zone in an unconfined aquifer and is at atmospheric pressure.

Seepage Velocity. The actual rate of movement of fluid particles through porous media.

Specific Storage. The amount of water released from or taken into storage per unit volume of a porous medium per unit change in head.

Specific Yield. The ratio of the volume of water that the formation, after being saturated, will yield by gravity, to the volume of the formation. Term used for unconfined or water-table aquifers.

Storativity. The volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head. It is equal to the product of specific storage and aquifer thickness. In an unconfined aquifer, the storativity is equivalent to the specific yield. Also called storage coefficient.

Stratigraphic Unit. A formation, part of a formation, or a group of formations in which there are similar geologic and hydrologic characteristics allowing for grouping typically into aquifers or confining units.

DEFINITION OF TERMS (CONTINUED)

Transmissivity. The rate at which water of the prevailing kinematic viscosity is transmitted through a unit width of the aquifer under a unit hydraulic gradient. It is a function of the liquid, the porous media, and the thickness of the porous media.

Unconfined Aquifer. An aquifer in which there are no confining beds between the zone of saturation and the surface. A water table exists in an unconfined aquifer.

Undrained Shear Strength (S_u). A property reserved for cohesive soils in which their resistance to shearing is determined. Units are in tons per square foot.

Water Table. The surface in an unconfined aquifer at which the pressure is atmospheric.

CONVERSION FACTORS

The inch-pound / metric units used in this report can be converted to the metric / inch-pound system of units as follows:

Length Conversion

<u>Inch-pound Unit</u>		<u>Metric Unit</u>
1 in	=	25.4 mm
1 ft	=	30.48 cm
1 mile	=	1.6093 km

Area Conversion

<u>Inch-pound Unit</u>		<u>Metric Unit</u>
1 sq in	=	6.452 sq cm
1 sq ft	=	0.0929 sq m
1 sq mile	=	2.59 sq km
1 acre	=	0.4047 ha

Volume Conversion

<u>Inch-pound Unit</u>		<u>Metric Unit</u>
1 cu in	=	16.39 ml
1 cu ft	=	28.317 l
1 US gallon	=	3.785 l
1 acre-ft	=	1233.5 cu m

Time Conversion

<u>Unit</u>		<u>Unit</u>
1 sec	=	1.67 E-02 min
1 min	=	1.67 E-02 hrs
1 hr	=	360 sec
1 day	=	8.64 E 04 sec

Temperature Conversion

$$\text{Temperature (C)} = (\text{Temperature (F)} - 32)/1.8$$

EXECUTIVE SUMMARY

Hill Air Force Base (Hill AFB) is located west of the Wasatch Front in northern Utah. Building 870 and the Patriot Hills Area are located in the western portion of the base. Near-surface sediments consist of unconsolidated surficial basin-fill deposits of the Quaternary and Recent Age. These sediments were eroded from the Wasatch Front and were carried west and deposited. The base is located on a plateau-like bench or terrace which is a remnant delta that formed as the ancient Weber River entered Lake Bonneville. The sediments in the area of the investigation are typical of deltaic deposits and consist of gravels, sands, silts, and clays.

Ground water flow is generally to the southwest and hydraulic conductivities in the uppermost portion of the first water-bearing unit are in the range of range of E-03 to E-04 cm/sec. Aquifer transmissivity and storativity tests were not conducted as part of the investigation. The depth to ground water ranges from about four to forty feet below grade.

Previous chemical analyses conducted at the site indicated that the ground water was contaminated with soluble hydrocarbons. A ground water contaminant plume has been delineated and is approximately 250 feet in width and 750 feet in length and generally follows the ground water flow net.

The higher concentrations of soluble hydrocarbons occurs at the potentiometric surface although detectable concentrations were observed at slightly deeper depths; possibly due to vertical dispersion. The maximum concentrations of the major organic compounds including benzene, toluene, ethyl-benzene, and total xylenes (BTEX) were observed to be 26.092, 21.919, 0.753, and 3.906 mg/l, respectively. The near-surface soils at the site are generally free of these hydrocarbons; however, in the vicinity of the 870 Building elevated soil gas concentrations were observed in the unsaturated zone.

The ground water contaminant plume represents the current level of migration within the upper-most water bearing unit although interference from other sources, ie. leakage from other above or below ground storage tanks or buried pipelines and fuel transmission lines may have also contributed to the plume.

PROGRAM OBJECTIVES

Terra Technologies - Southwest, Inc., at the request of James M. Montgomery Consulting Engineers, Inc. (JMM), initiated an environmental site assessment of the Building 870 / Patriot Hills Area during August, 1992. The investigation was prompted by the results of previous studies conducted at the site by JMM. Due to the limited number of monitoring wells installed during of these studies, however, a more detailed evaluation of the near-surface soil and ground water conditions in the area was required.

JMM requested that the investigation be undertaken to locate the source or sources and to determine the extent and distribution of ground water contamination. This report describes the results of the environmental site assessment.

INTRODUCTION

Site Description

Hill Air Force Base is located west of the Wasatch Front in northern Utah. Building 870 and the Patriot Hills Area are located in the western portion of the base. Building 870 serves as a command center and logistical support for the dispensing of JP-4 through a series of fuel transmission lines to the major flightlines. Located just to the north of Building 870 are several large capacity above ground storage tanks. Diesel storage facilities and transfer systems are also located in the general vicinity. The area of principal investigation is illustrated on Plate 1.

The land surface at the facility is relatively flat in the area of Building 870, however, a significant slope exists to the southwest in the groundwater flow direction. This slope is due in part to the deltaic depositional system. Surveying was not conducted as part of the investigative activities.

The depth to ground water at the site is typically in the range of four to forty below grade with a ground water flow direction to the southwest.

Nature And Scope Of The Problem

Upon removal of an underground storage tank (UST) in the vicinity of Building 870 by JMM, contaminated soils were observed in the excavation, although the actual tank appeared to be in good condition. Soil samples collected from the excavation exhibited elevated Total Petroleum Hydrocarbon (TPH) levels. A new 1,000 gallon, double-walled steel UST with leak detection equipment was installed in the excavation. No attempts were made to excavate the contaminated soils due to the potential of damaging a retaining wall to the south of the excavation.

Subsequent to the installation of several monitoring wells by JMM, Terra Technologies was contracted to define to extent of contamination by use of cone penetrometer testing equipment and in-situ soil gas and ground water sampling capabilities. The purpose was to define the limits of the plume without the installation of additional wells. After definition had been achieved, conventional wells would then be placed at optimum depths and locations.

FIELD INVESTIGATION

Field investigations subsequent to the above discussed activities consisted primarily of routine ground water sampling from existing monitoring wells, conducting cone penetration testing, collecting in-situ soil gas and ground water samples, performing dissipation tests, and conducting in-field analytical testing.

Monitoring Well Sampling And Analysis

Ground water samples were collected from several existing monitoring wells at the site for "finger-printing" various contaminants. The samples were analyzed for BTEX and PCE on-site using a SRI portable gas chromatograph.

Prior to analysis, the static water level was measured in each well with an accuracy of ± 0.01 feet. Three casing volumes of ground water was removed with a PVC bailer prior to the collection of each sample. Ground water samples were retained in 40 ml volatile organic analysis (VOA) vials and were analyzed immediately after sampling. The bailer and water level indicator was thoroughly decontaminated between locations by the following procedure:

1. Rinse with potable water
2. Wash with distilled water and Alconox solution
3. Triple rinse with distilled water

Cone Penetration Testing

Terra Technologies conducted 38 3-Channel and one 4-Channel electronic cone penetration test soundings in conjunction with the site assessment. Locations were identified in the field by a JMM representative. Some of the originally scheduled locations were offset due to inaccessible conditions or the presence of rubble near the surface. Plate 2 presents the approximate CPT test locations.

Soundings were conducted using our truck-mounted electronic CPT unit. One of the advantages of the cone penetrometer is the speed of operation which permits soil stratigraphy to be determined quickly and economically. Another advantage is the continuous penetration record which permits the identification of thin strata which could influence the geo-hydrologic conditions in the area. These thin strata can easily be missed by conventional drilling and sampling techniques.

The entire system was mounted in a rugged mobile truck which contained the system components including the data processing equipment. The cone was hydraulically pushed into the soil and a continuous record of tip resistance (Q_c), local friction (F_s), friction ratio (R_f), and inclination (I_n) was obtained. The data was available for immediate evaluation via a computer plotting system onboard the truck. The data was also stored on magnetic media for future processing.

Some of the more useful properties and parameters that can be obtained from cone penetrometer data include:

- Soil stratigraphy
- Undrained shear strength
- Compressibility
- Over-consolidation ratio (OCR)
- Correlation to N-value from standard penetration tests
- Relative density
- Liquefaction potential

In addition to the above, the 4-Channel cone was used to obtain pore water pressure measurements. Piezocone testing has many advantages over the conventional cone penetrometer test. The main advantages include:

- a. the ability to distinguish between drained, partially drained, and undrained penetration,
- b. the ability to correct measured cone data to account for unbalanced water forces due to unequal end areas in cone design,
- c. the ability to evaluate flow and consolidation characteristics of the soil,
- d. the ability to assess equilibrium ground water conditions, and
- e. improved soil profiling and identification with improved evaluation of environmental parameters.

There is significant importance as to the placement of the pore pressure element during a 4-Channel cone penetration test. Pore pressures can be generated in saturated soils due to changes in both mean normal stresses and shear stresses. When saturated soils are subjected to increases in mean normal stresses, positive pore pressures are generated. When saturated soils are subjected to only shear stresses, pore pressures generated can be either positive or negative depending on the contractive or dilative response of the

soil. During cone penetration testing, soil particles adjacent to the cone experience changes in both normal and shear stresses. Pore pressures measured on the face of a penetrating cone are influenced by both normal and shear stresses, whereas, pore pressures measured behind the tip tend to be influenced predominantly by shear stresses. The importance of element placement therefore is important during the reduction of pore pressure data.

The 4-Channel cone penetrometer test sounding was also conducted for the determination of piezometric elevations and hydraulic conductivities of various lithologic units. Values of hydraulic conductivity are determined by measuring the rate of decay of the excess pore pressures generated by pushing the cone through the soil. This rate of decay is a function of the hydraulic conductivity of the soil medium. After conducting several decay tests in a single sounding, the static ground water table can be determined by review of the associated hydrostatic equilibrium pressures.

The cone penetrometer equipment was also utilized for the project due to the following environmental concerns:

- The cone penetrometer test and its associated sampling equipment produced its own hole. There were virtually no cuttings or soil at the ground surface which needed to be collected for proper disposal.
- The cone penetrometer test was a dry test and there were no contaminated drilling fluids requiring disposal.
- The cone and the sounding rods were the only equipment which came in contact with the contaminated soil. They were easily decontaminated in the field, as required.
- All sampling was conducted inside an environmentally controlled unit thereby greatly reducing personnel exposure to contaminants.
- Testing was very rapid.

The cone penetration tests were conducted in accordance with specifications as outlined in ASTM D 3341 and the sounding logs are presented in Appendix A.

Soil Gas & Ground Water Sampling (CPT System)

Soil Gas Sampling - Based on the known stratigraphy in the area, a single vertical soil gas profile was completed near Building 870. Sampling was conducted by hydraulically

advancing a grout tip to the desired depth using blank CPT rods. Soil gas samples were collected and analyzed in-field by three successive procedures. Upon reaching the desired depth, the sampling system was opened which allowed soil gas to enter the CPT rods. Initially, the soil gas within the blank CPT rods were monitored with an TECO Organic Vapor Monitor. The second method of sampling involved the installation of a 1/4-inch Teflon tubing to the desired sampling depth and allowing the sampling pump within the OVM to analyze the soil gas. The third method of in-field VOC analysis involved the use of a vacuum pump attached to the 1/4-inch Teflon tubing. Soil gas was then pulled through the Teflon tubing until a consistent pressure was noted on a series of gauges. At this point, any stagnant air within the system was evacuated and a suction was placed directly on the soil. Soil gas samples were collected in Tedlar bags through a specially designed sampling port.

The entire sampling system was purged with argon and blanks were analyzed between successive sampling methodologies. The OVM was used to verify that the decontamination process was complete.

In addition, a soil gas sample was also collected in the basement of a residence located on Hamilton Street. The analysis exhibited all compounds of interest to be less than the standard detection levels for this project.

Results of the soil gas sampling program are presented in Table 1.

Lateral Extent Of Soluble Hydrocarbons - Subsequent to the cone penetrometer tests, soil gas and/or ground water samples were collected for analytical testing. Since the soluble hydrocarbons of concern were benzene, toluene, ethyl-benzene, and the xylene isomers, a sampling depth at the potentiometric surface was selected.

Ground water samples were collected by one of two methods. In the first procedure, a sample was collected by inserting 0.5-inch ID 0.010-inch slotted PVC pipe in the hole caused by pushing the cone penetrometer. As soon as fluids were detected within the PVC by an electronic water level indicator, samples were withdrawn via a small diameter stainless steel bailer. The screened section of the PVC was placed across the water table to obtain the most representative BTEX analysis sample.

The second method was utilized if the remaining hole did not allow PVC to be installed due to its flexibility or if the hole had collapsed. In this method, a sacrificial tip was

placed on the end of blank GWS rods and the rods were pushed to the depth of interest. Sampling was accomplished by leaving the tip in the ground and pulling back the GWS rods. The influx of ground water into the GWS rods was measured by the electronic water level indicator and a sample was then collected with a stainless steel bailer.

All sampling tools and electronic indicators were thoroughly decontaminated between each sampling event and location.

Vertical Extent Of Soluble Hydrocarbons - A cone penetrometer capable of collecting in-situ ground water samples was used to determine the vertical extent of the soluble hydrocarbon plume.

When sampling with the ground water cone, each component of the system is sealed and hydraulic interconnections between components are accomplished through the use of hypodermic needles, flexible seals, and induced pressure gradients. Ground water samples are collected in sealed, pressurized, glass vials which can be sent directly to the laboratory.

The system makes it possible to collect pressurized ground water samples without the necessity of purging large amounts of well water or transferring samples to other containers, a procedure which often results in a loss of volatile chemical constituents through volatilization or external contamination.

The primary feature of the system is the filter tip, the standard configuration of which consists of a thermo-plastic body and a filter of high density polyethylene. The filter tip is reinforced with a core of teflon coated stainless steel and sealed with a flexible septa of resilient teflon or fluororubber depending upon the project QA/QC requirements.

Ground water samples are obtained by inserting a pre-sterilized, pre-evacuated glass sample vial into a sample container housing and then lowering it down the PVC extension pipes. At the lower end of the housing is a spring loaded "guide sleeve" assembly which houses a double-ended hypodermic needle. The glass vial contains a flexible septa similar to those in the filter tips. Contact between the guide sleeve and the filter tip causes the needle to puncture the septa in both the cap and the sample vial. The vacuum in the vial then draws ground water from the wells, through the filter tip and into the vial. Withdrawing the sampler housing allows the needle to withdraw from both the sample vial and the filter tip. The guide sleeve mechanism causes the needle to withdrawal from the sample vial first, thus preventing a loss of sample fluid. The septa in both the filter tip and the sample vial automatically reseal as the needle is

withdrawn.

One of the major advantages of the system is that only the small amount of ground water contained in the filter tip itself, must be purged from the system prior to sampling. The system essentially eliminated the sources of physical, chemical, and human error normally associated with ground water sampling.

In-Field Analytical Testing

The analysis of ground water in the field was accomplished by using a portable gas chromatograph (GC) to measure the concentration of volatile organics in the headspace above the ground water samples. The ability to reliably determine part per billion and part per million by volume (ppbv and ppmv) concentrations in the headspace was used to determine the concentration of these species in ground water. This can be done using information available on the partitioning of organics species between the aqueous and vapor phases (Henry's Law constants or solubility and vapor pressure data) or by preparing water standards and analyzing the headspace.

A SRI Model 8610 portable GC equipped with a photoionization detector (PID) was used for all field analyses.

Standard solutions of known concentrations were prepared and were used to periodically calibrate the gas chromatograph. Calibration of the GC was conducted at the start of each day and whenever the performance of the GC was in question.

The results of the ground water analytical testing program is summarized in Table 2 and attached in detail as Appendix B.

Dissipation Testing

Dissipation testing was conducted at location PCPT-01 in an effort to obtain general conductivity measurements and various physical hydrologic properties of the upper most water-bearing unit. The results of the cone penetration testing and associated dissipation tests yield hydraulic conductivities in the range of E-03 to E-04 cm/sec.

Quality Assurance / Quality Control (QA/QC) Program

To maintain a high level of QA/QC in the field, all personnel were briefed prior to the field investigation concerning the health and safety aspects associated with this program in

particular and to review sample collection, handling, and shipping procedures. Sampling personnel were also briefed on the local geological and hydrological aspects of the formations to be sampled.

Inherent to all soil gas and ground water sampling is the assumption that the soil gas and/or ground water removed is representative of the conditions remaining and therefore will yield information on the physical and chemical attributes of the area being sampled at that time and place of sampling. Another assumption is that when a sample is collected at a different location, you can infer what is taking place in the subsurface, not only over space, but also over time when the correct sampling points are determined. With these assumptions in mind, portions of the following QA/QC program were initiated for the field portion of the project:

Field Program

Step : Hydrologic measurement
Goal : Establish static water level
Action : Measure the water level to 0.01 foot

Step : Well purging
Goal : Removal of stagnant water which could bias ground water chemistry results
Action : Bail or pump water until purging parameters such as pH, Temperature, Ohms, Eh, or chemistry will stabilize to $\pm 10\%$ over at least two well volumes.

Step : Soil gas and/or ground water sample collection
Goal : Collection of samples with minimal disturbance of sample chemistry
Action : Dedicated sample containers. Bailing or pumping rates less than 100 ml/min for volatile organics

Sampling equipment was thoroughly decontaminated between sampling events and locations. Equipment blanks were also analyzed to verify that cross-contamination had not occurred.

Step : Filtration / Preservation
Goal : Determination of soluble constituents
Action : Filter trace metals, inorganic anions/cations, alkalinity. Do not filter TOC, TOX, volatile organic compound samples.

Step : Field determinations
Goal : Field analysis of samples will avoid bias in determinations of samples which are highly volatile or do not keep well.
Action : Field screening was conducted on a select number of samples prior to analysis.

Step : Field analytical test equipment
Goal : To accurately monitor organic compounds
Action : Equipment used during the screening process is to be calibrated in a clean environment with specialty samples of organic compounds known to exist in the soil and ground water in the area.

Step : Field blanks / standards
Goal : To permit the correction of analytical results for changes which may occur after sample collection, preservation, storage, and transport.

Action : Where appropriate, at least one blank and one standard should be made up in the field during sampling. Spiked samples should also be sent to the laboratory for analysis.

Step : Sample storage / transport
Goal : To minimize any chemical alteration of samples prior to analysis.
Action : All samples shall be either refrigerated or placed on ice immediately upon collection. Maximum sample holding times or storage periods should be adhered to.

Step : Sample documentation
Goal : To determine the handling and liability of samples during shipment and analysis.
Action : All samples sent off-site shall be accompanied by a completed Chain Of Custody (COC) form, properly signed and dated.

Analytical Testing Program

The objective of the laboratory QA/QC program was to provide uniform conditions for sampling, instrument and method control, and performance evaluation.

The procedures are presented in terms of sampling, extraction analytical methodology, surrogate spike analysis, and sample analysis. It should be noted that not all methodologies were a requirement for this project.

Sampling -

As described in "USEPA CONTRACT LABORATORY PROGRAM - Statement of Work for Organic Analysis - Multi Media - Multi Concentration", July, 1987.

Extraction -

Methods involve solvent extraction of the matrix and subsequent analysis using GC or GC/MS.

Analytical Methodology -

1. GC/MS Calibration and Abundance Pattern - The analytical equipment is tuned and calibrated for both volatile organics and for semi-volatiles. The abundance criteria are demonstrated daily or if analyses are frequent; for each 12 hour period.
2. Calibration of GC/MS System - The system calibration is conducted after all tuning criteria have been met and before any samples or blanks are analyzed. The calibration is also verified for each 12 hour period.
 - a. Linearity Response - The system is calibrated at five concentrations to determine the linearity response using standards. The concentrations of 20, 50, 100, 150, and 200 ug/l (ppb) are used together with internal standards and surrogates. The calibration also requires that the relative retention time of each calibration compound in each calibration run is within 0.06 retention time units. The internal standards and surrogates used are per the EPA-CLP protocol. It is also required that the percent relative standard deviation for each calibration check compound is less than or equal to 30 percent.
 - b. Performance Check - The system performance check is performed each 12 hours during analyses using a calibration standard of 50 ug/l (ppb) concentration.

- c. Initial Calibration Check - The validity of the initial calibration is checked using calibration check compounds listed as per EPA-CLP protocol. A minimum difference of 25 percent is allowed to have a valid calibration.
- d. Method Blank Analysis - Blank analyses of deionized water or pure sample matrix is performed before sample analyses to minimize artifacts due to contaminants in solvents, reagents, glass ware, etc.

Surrogate Spike Analyses -

Surrogate standard determinations are performed on all samples and blanks by spiking each sample, matrix spike, and blanks prior to extraction. The surrogate spiking compounds used are per EPA-CLP protocol. The recovery is evaluated to ensure that the concentration is within the required recovery limits.

Sample Analysis -

- 1. Internal Standard Response - Internal standard responses are evaluated in all samples so that the changes in retention times are not more than a factor of two.
- 2. Concentration Readjustment - The sample is diluted and the internal standard concentration readjusted if any compound in the sample exceeds the initial calibration range. If dilution causes any compound to be undetectable, the results of both analyses are considered.
- 3. Qualitative Analysis - The two criteria which must be satisfied to verify the identification are (i) the elution of the sample component must be at the same GC relative retention time (within 0.06 units) as the standard component and (ii) the correspondence of the sample component mass spectra where the relative intensities of specific ions must agree within 20 percent of the standard spectra.
- 4. Quantification - The components are identified by the internal standard method and by surrogate standard recovery.

INTERPRETATION OF COLLECTED DATA

Cone Penetration Testing

Upon completion of the field program, results were interpreted via a computer program which determines soil behavior. Tabulated data is based on values averaged over a depth of 0.25 meters and therefore the influence of extreme values may be subdued. Due to this averaging technique, values of equivalent density, friction angle, SPT, and Su may vary from results obtained from laboratory testing on specific samples. From an environmental standpoint, this method is preferred over the conventional intermittent sampling and testing program which yields soil data at discrete points which may not be representative of the soil profile in terms of behavior. For the determination of thin lenses or layers, equally important for environmental studies, the digital CPT data should be reviewed.

Output parameters are defined in the "Definition Of Terms" section at the front of the report.

For determination of Su values, Nk factors of 18 to 29 were utilized based on known soil conditions in the area. Nk is generally obtained from empirical correlations. Reference undrained shear strengths are usually measured from field vane tests although half the unconfined compression test is often used. Values of Su determined from the cone data are in general agreement with results obtained from previous investigators in the area.

Based on the interpreted CPT profiles, the soil types at the site are composed of silty clays and clayey silts to sandy silts, sands, and occasional gravel lenses, pockets, and layers. The site stratigraphy varied at each of the CPT locations although three distinct zones can normally be identified. The first zone consists of clayey silts to silty clays. The unit varied in thickness from about five to 35 feet. Su values typically ranged between 0.5 and 3.5 tons per square foot (tsf) with an average of about 1.5 tsf representing a stiff to very stiff cohesive material. With the exception of a few minor silt and sand layers this material is considered to have low permeability.

The second zone is predominantly a sand to silty sand and can extend from near the surface to a depths greater than 50 feet. This cohesionless unit has equivalent densities which varied between < 40 and $> 90\%$ and associated phi angles of 36 to 48 degrees. This unit often resides within the saturated zone, the wide range in density and phi angle suggests that

there are layers of both low and high vertical hydraulic conductivity within this zone.

The third zone consists of silty clays. The unit varied in thickness from nonexistent to about 20 feet. Su values were typically lower than the upper zone and ranged between 0.3 and 2.0 tons per square foot (tsf) with an average of about 1.0 tsf representing a stiff soil. Again, with the exception of a few minor silt and sand layers this material is considered to have low permeability.

Changes in depositional environment have been shown to directly influence vertical as well as lateral migration of soluble hydrocarbons at this site. Based upon the CPT logs, a channel sand exists to the southwest of Building 870. Definition of this channel sand provided good definition of the ground water contaminant plume.

Interpretative cone penetrometer test data for each sounding is presented in conjunction with the CPT profiles in Appendix A.

Dissipation Testing

Values of hydraulic conductivity obtained from this test method proved to be reasonable for the known soils at the site and represents silty sands to silts.

Soil Gas Quality

Based upon the sampling methodology, analytical instrumentation, and ambient soil gas properties, samples of soil gas collected from a single location presented elevated levels of BTEX. Several other unknown volatile compounds were also detected in numerous samples. Additional locations would need to be investigated prior to drawing any firm conclusions regarding soil gas quality in the area.

Ground Water Quality

Based upon the sampling methodology, analytical instrumentation, and ambient ground water properties, samples of ground water collected from several locations presented elevated levels of BTEX.

The highest recorded combined BTEX value was observed at location CPT-07 located south southwest of Building 870. Benzene, toluene, ethyl-benzene, and xylenes concentrations for this location were 26.092, 21.919, 0.753, and 3.906 mg/l,

respectively at this location. Elevated BTEX levels (greater than a combined value of 1.000 mg/l) were also observed at locations CPT-01, CPT-02, CPT-03, CPT-09, CPT-10, CPT-12, CPT-14, CPT-20, and CPT-37.

Plate 3 presents a topographical view of the lateral extent of combined BTEX based on detection level of 0.100 mg/l.

The following observations can be drawn from Plate 3:

1. The source of the soluble hydrocarbons plume appears to be located in the area west of Building 870.
2. The plume configuration trends in a northeast-southwest direction.
3. Plume alignment mirrors both the general ground water flow direction as well as a depositional "channel" as noted on the CPT sounding logs.
4. The soluble hydrocarbon plume is approximately 250 feet in width and about 750 feet in length based on a lateral characterization only.

Plate 4 presents the lateral extent of the hydrocarbon plume in three dimensions.

The results of the vertical sampling program exhibited BTEX concentrations at depth below the static ground water table. At location PCPT-01, benzene, toluene, ethyl-benzene, and combined xylenes were detected to a depth of 10 feet below the potentiometric surface. The results at this depth were 0.195, 0.946, 0.072, and 0.089 mg/l, respectively.

CONCLUSIONS

Following the environmental site assessment at the Building 870 / Patriot Hills Area which included the installation of temporary piezometers and subsequent analytical analyses, a reasonable estimate of contaminant migration and transport from a probable source located west of Building 870 was determined. Based on the reviewed data, the plume is approximately 750 feet in length in a northeast-southwest direction and about 250 feet in width.

Soluble hydrocarbons in the area have been detected to depths of 10 feet within the saturated zone although the higher concentrations were detected within the upper portions of the aquifer. Detection at these depths, may be due in part, to vertical dispersion.

The ground water contaminant plume represents the current level of migration within the upper-most water bearing unit and appears to be primarily controlled by a depositional channel, although interference from other sources, ie. leakage from above ground storage tanks or buried pipelines and other fuel transmission lines may have also contributed to the plume.

TABLES

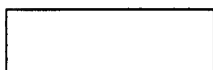
TABLE 1
SOIL GAS SAMPLING ANALYSES

Depth Below Grade (m)	Method A (mg/l)	Method B (mg/l)	Method C (mg/l)
1.00	1.2	26.4	72
2.00	0.6	24.0	17.4
4.00	0.6	26.1	64
5.00	1.2	67	>10,000
6.00	1.8	115	>10,000
8.00	2.0	208	>10,000

Note: All values are total VOC as isobutylene

TABLE 2
GROUND WATER SAMPLING ANALYSES

Location	Concentration, ppm (mg/l)				
	Benzene	Toluene	E-Benzene	Comb. Xyl.	PCE *
TP-01	0.741	2.273		1.027	0.425
TP-02	5.203	7.578	0.740	4.177	3.809
TP-03	2.701	3.112	0.322	1.655	2.447
TP-04					
TP-05					
TP-06					
TP-07	26.092	21.919	0.753	3.906	2.204
TP-08					
TP-09	0.992	2.128	0.173	0.301	1.269
TP-10	1.928	3.214		3.830	3.618
TP-11					
TP-12	1.163	0.565	0.062	0.265	0.636
TP-13		0.069		0.062	
TP-14	1.440	0.392	0.338	1.378	
TP-15					
TP-16					
TP-17			0.014	0.057	
TP-18					
TP-19	0.646		0.036	0.149	0.125
TP-20	0.124	2.699		0.504	0.303

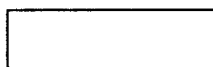


= < 0.005

* Tetrachloroethylene

TABLE 2 (CONTINUED)
GROUND WATER SAMPLING ANALYSES

Location	Concentration, ppm (mg/l)				
	Benzene	Toluene	E-Benzene	Comb. Xyl.	PCE *
TP-21				0.057	
TP-22	0.056	0.090	0.022	0.104	
TP-23					
TP-24					
TP-25					
TP-26					
TP-27					
TP-28					
TP-29					
TP-30					
TP-31					
TP-32					
TP-33					
TP-34					
TP-35	N/A	N/A	N/A	N/A	N/A
TP-36				0.052	
TP-37	0.789	0.930		4.179	2.525
TP-38					
TP-39					
TWP-01	0.520	1.271	0.085	0.173	0.795



= < 0.005

* Tetrachloroethylene

TABLE 2 (CONTINUED)
GROUND WATER SAMPLING ANALYSES

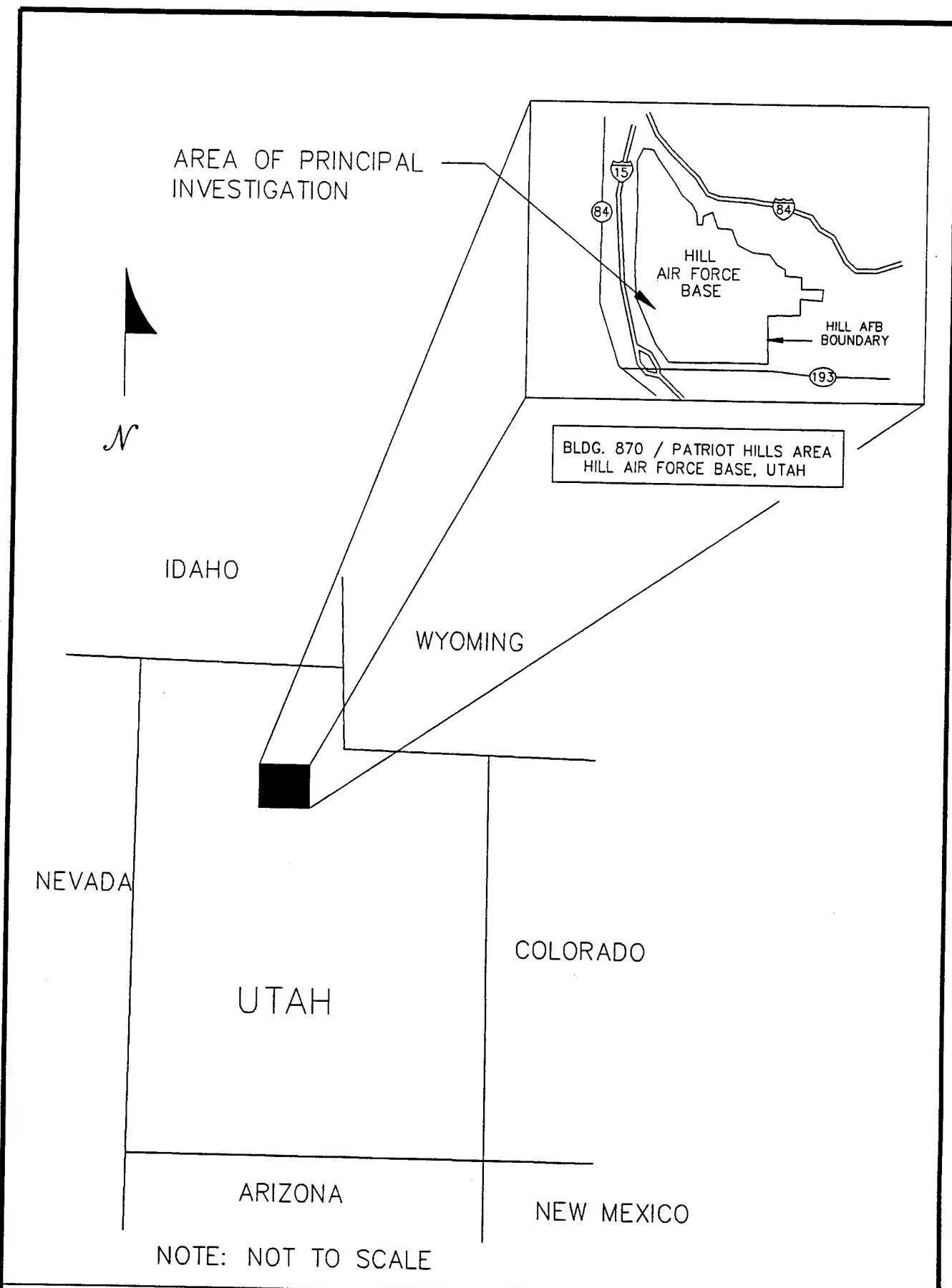
Location	Concentration, ppm (mg/l)				
	Benzene	Toluene	E-Benzene	Comb. Xyl.	PCE *
SGS-01	0.161	12.645	0.046	0.295	
GWS-01	0.195	0.946	0.072	0.089	
GWS-02					
MW-03	12.179	6.728		7.669	2.722
MW-07					



= < 0.005

* Tetrachloroethylene

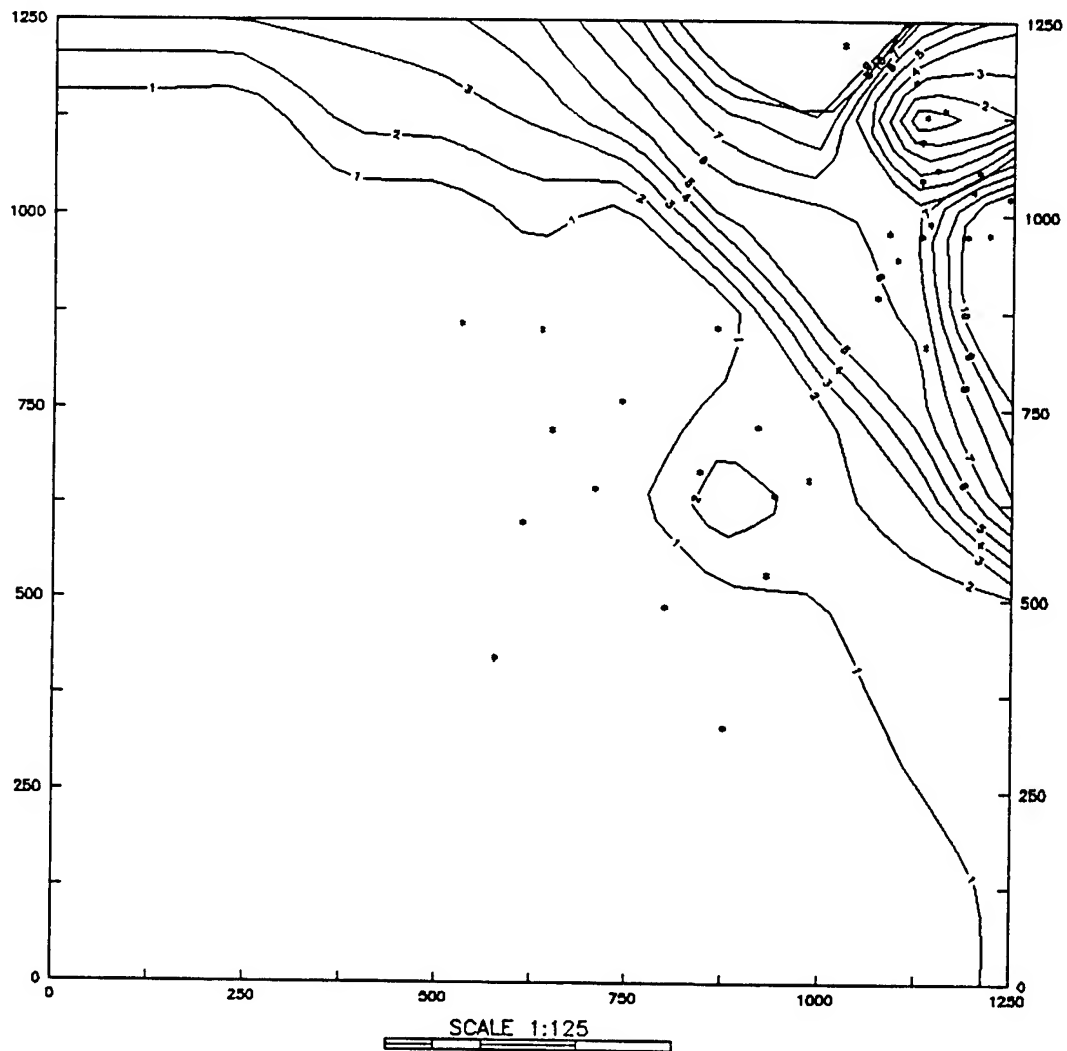
PLATES



NOTE: NOT TO SCALE

TERRA TECHNOLOGIES - SOUTHWEST, INC.			
GEOTECHNICAL & ENVIRONMENTAL SITE INVESTIGATIONS			
TITLE: AREA OF PRINCIPLE INVESTIGATION	11/2/92	PLATE NO. : 1	
PROJECT NO. : 92-1016	DRAWN BY : REJ	SCALE : NOT TO SCALE	REV. NO. : 0

COMBINED BTEX CONCENTRATION (mg/l)



TERRA TECHNOLOGIES - SOUTHWEST, INC.
GEOTECHNICAL & ENVIRONMENTAL SITE INVESTIGATIONS

TITLE: 2-D VIEW - COMBINED BTEX

11/2/92

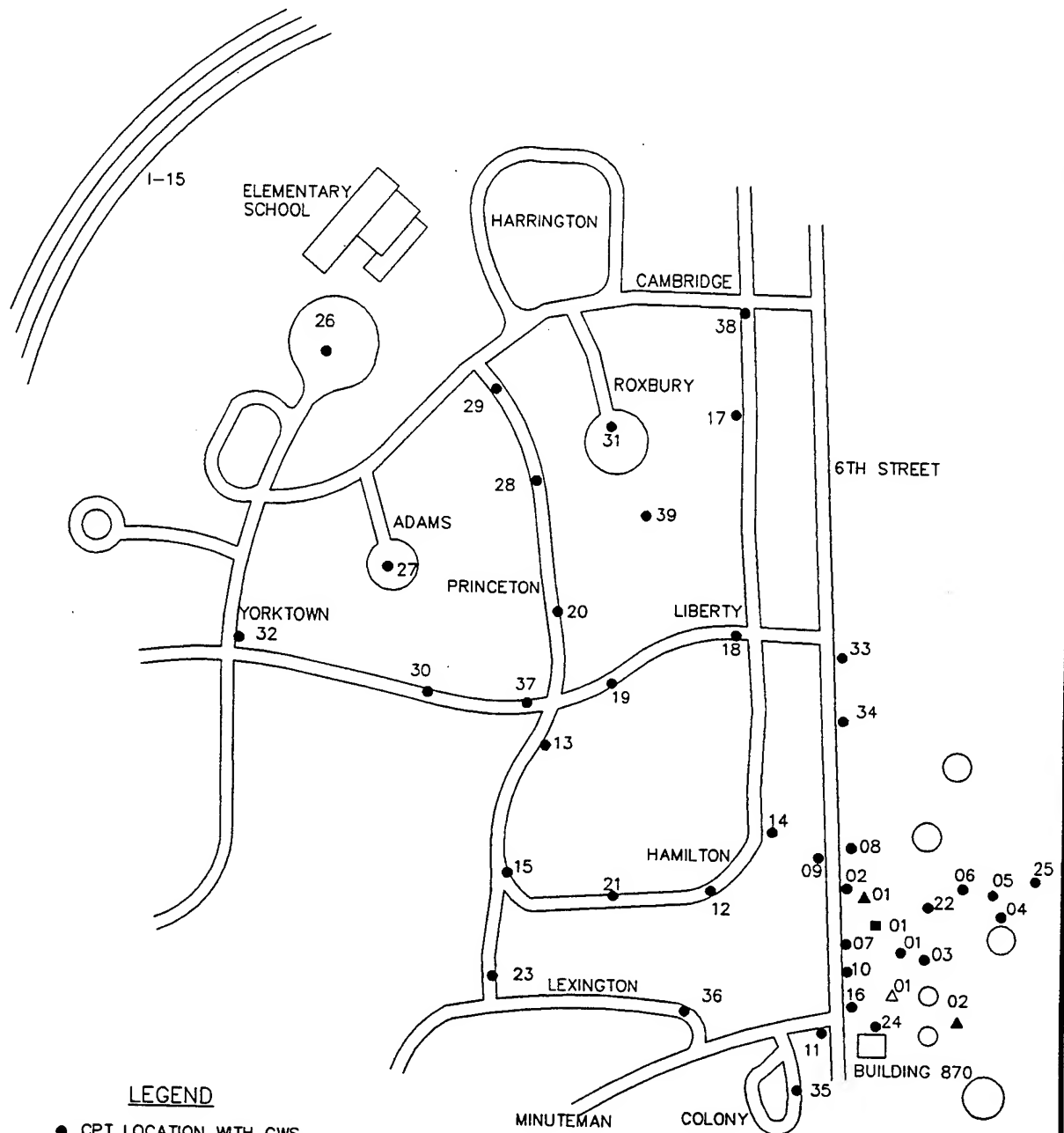
PLATE NO. : 3

PROJECT NO. : 92-1016

DRAWN BY : REJ

SCALE : NOT TO SCALE

REV. NO. : 1



LEGEND

- CPT LOCATION WITH GWS
- PCPT LOCATION WITH GWS
- ▲ GWS ONLY
- △ SGS ONLY

NOTE : GWS = GROUND WATER SAMPLING
SGS = SOIL GAS SAMPLING

TERRA TECHNOLOGIES - SOUTHWEST, INC. **GEOTECHNICAL & ENVIRONMENTAL SITE INVESTIGATIONS**

TITLE: APPROXIMATE CONE PENETRATION TEST LOCATIONS

DATE : 11/02/92

PLATE NO. : 2

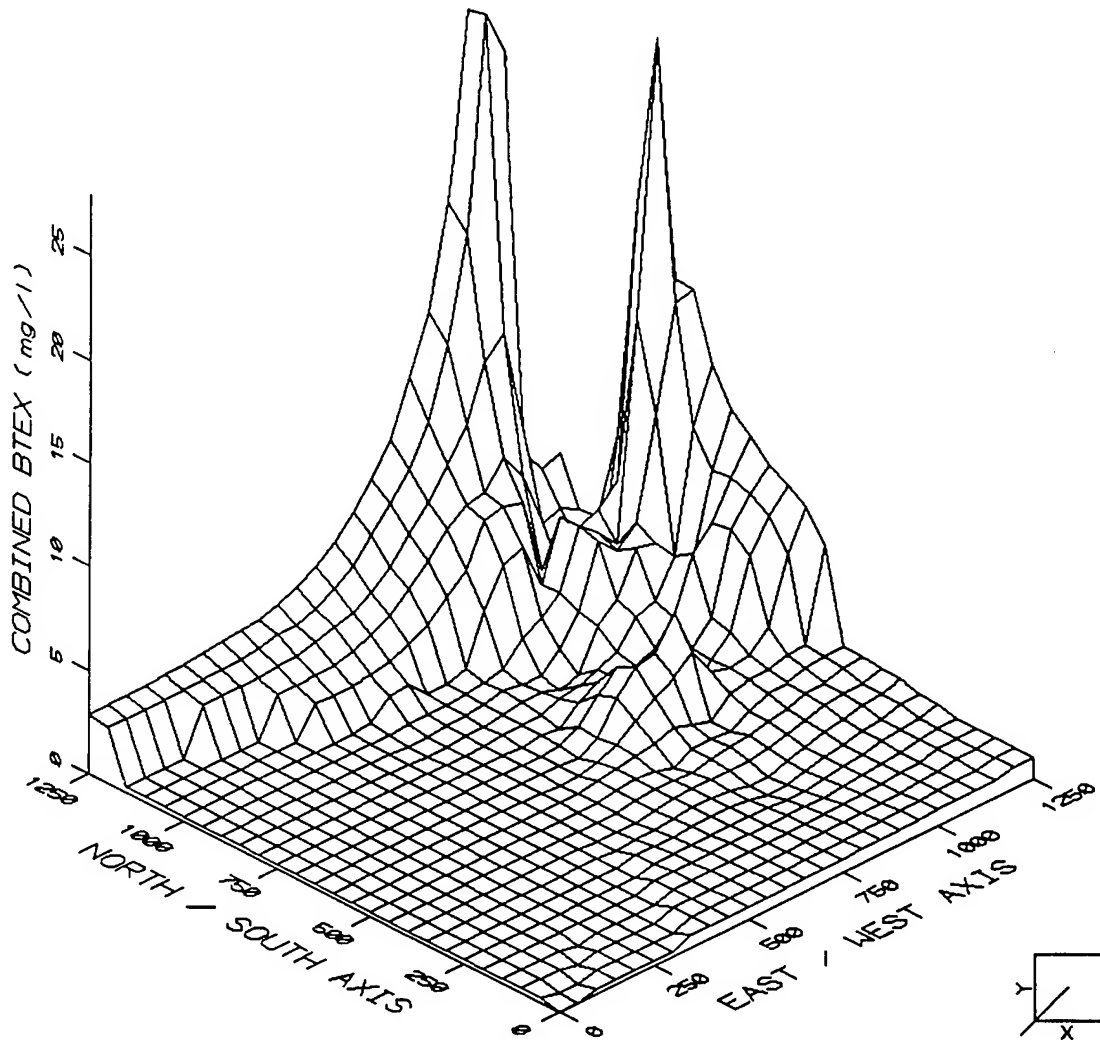
PROJECT NO. : 92-1016

DRAWN BY : REJ

SCALE : NOT TO SCALE

REV. NO. : 0

COMBINED BTEX CONCENTRATION



TERRA TECHNOLOGIES - SOUTHWEST, INC.
GEOTECHNICAL & ENVIRONMENTAL SITE INVESTIGATIONS

TITLE: 3-D VIEW - COMBINED BTEX

11/2/92

PLATE NO. : 4

PROJECT NO. : 92-1016

DRAWN BY : REJ

SCALE : NOT TO SCALE

REV. NO. : 1

APPENDIX A
CPT SUMMARY REPORT
CPT PROFILES

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-04-92

SOUNDING NO. : CPT-01 Pg 1 / 1

LOCATION : BLDG. 870

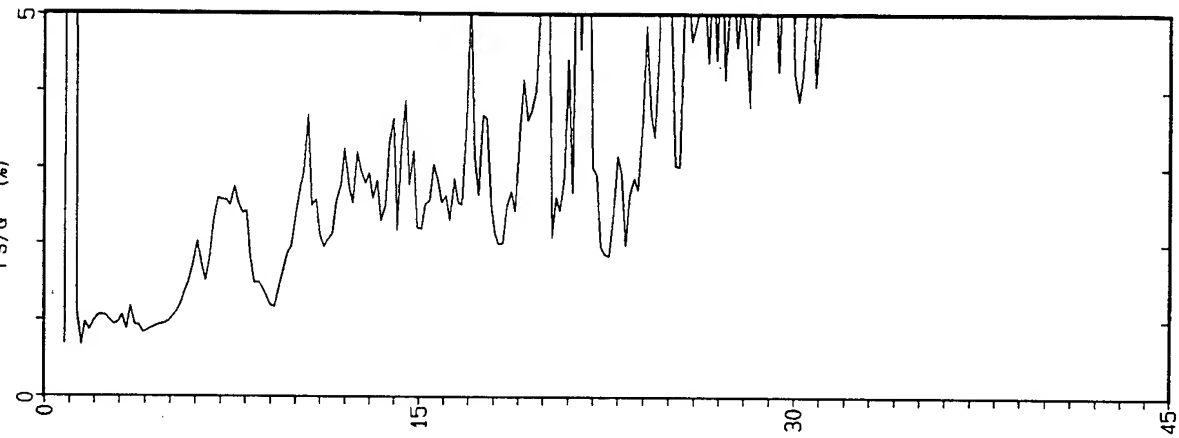
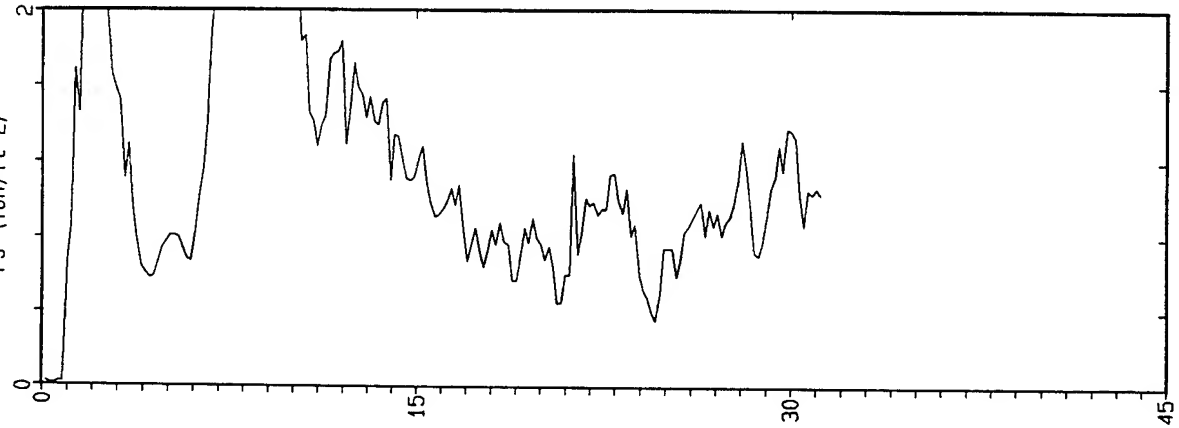
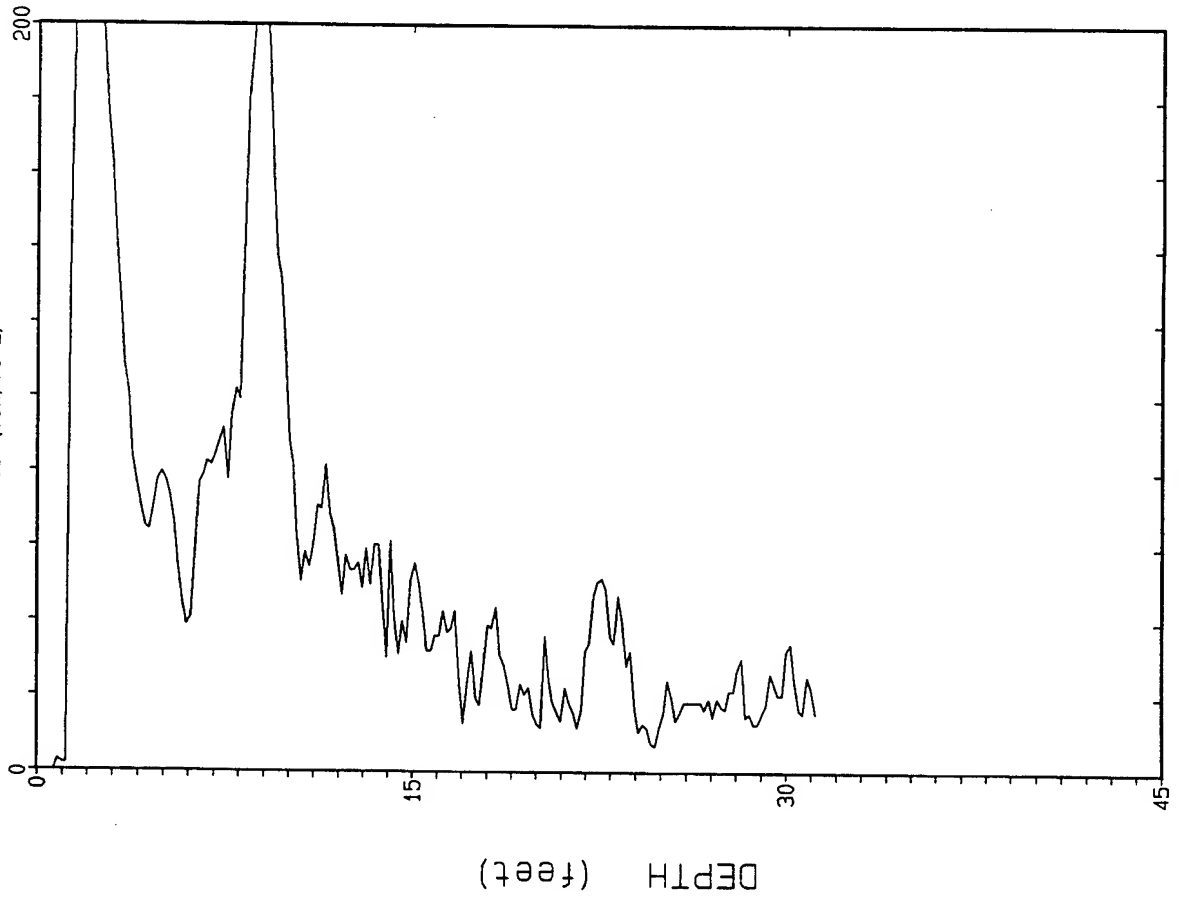
DEPTH TO WATER : 43.65 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 31.17 ft

Contractor : TERRA TECH SW

Test Date : 08-04-92

Location : CPT-01

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 6.95

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	0.58	0.02	2.76	0.02	undefined	UNDFND	UNDFD	UDF	UNDEFIN
0.50	1.64	121.92	1.41	1.15	0.07	sand to silty sand	>90	>48	29	UNDEFIN
0.75	2.46	248.76	2.48	1.00	0.11	sand	>90	>48	48	UNDEFIN
1.00	3.28	160.52	1.56	0.97	0.16	sand	>90	>48	31	UNDEFIN
1.25	4.10	88.44	0.85	0.97	0.20	sand to silty sand	80-90	46-48	21	UNDEFIN
1.50	4.92	71.70	0.67	0.94	0.25	sand to silty sand	70-80	44-46	17	UNDEFIN
1.75	5.74	63.48	0.77	1.21	0.29	silty sand to sandy silt	70-80	44-46	20	UNDEFIN
2.00	6.56	58.64	1.02	1.73	0.34	silty sand to sandy silt	60-70	42-44	19	UNDEFIN
2.25	7.38	85.90	2.15	2.51	0.38	silty sand to sandy silt	70-80	44-46	27	UNDEFIN
2.50	8.20	103.64	2.41	2.32	0.43	silty sand to sandy silt	70-80	44-46	33	UNDEFIN
2.75	9.02	201.82	2.76	1.37	0.47	sand to silty sand	>90	46-48	48	UNDEFIN
3.00	9.84	147.48	2.30	1.56	0.52	sand to silty sand	80-90	44-46	35	UNDEFIN
3.25	10.66	68.34	1.90	2.78	0.56	sandy silt to clayey silt	UNDFND	UNDFD	26	3.2
3.50	11.48	67.58	1.45	2.15	0.61	silty sand to sandy silt	60-70	40-42	22	UNDEFIN
3.75	12.30	58.86	1.63	2.77	0.65	sandy silt to clayey silt	UNDFND	UNDFD	23	3.2
4.00	13.12	54.16	1.57	2.89	0.70	sandy silt to clayey silt	UNDFND	UNDFD	21	2.37
4.25	13.94	49.30	1.39	2.82	0.74	sandy silt to clayey silt	UNDFND	UNDFD	19	2.3
4.50	14.76	41.50	1.22	2.93	0.79	sandy silt to clayey silt	UNDFND	UNDFD	16	2.22
4.75	15.58	46.14	1.14	2.46	0.83	sandy silt to clayey silt	UNDFND	UNDFD	18	2.51
5.00	16.40	36.80	0.97	2.63	0.88	sandy silt to clayey silt	UNDFND	UNDFD	14	1.75
5.25	17.22	28.28	0.87	3.06	0.92	clayey silt to silty clay	UNDFND	UNDFD	14	1.7
5.50	18.04	27.46	0.76	2.76	0.97	clayey silt to silty clay	UNDFND	UNDFD	13	1.47
5.75	18.86	32.92	0.75	2.28	1.01	sandy silt to clayey silt	UNDFND	UNDFD	13	1.7
6.00	19.69	19.90	0.76	3.80	1.06	silty clay to clay	UNDFND	UNDFD	13	1.4
6.25	20.51	20.08	0.73	3.62	1.11	silty clay to clay	UNDFND	UNDFD	13	1.05
6.50	21.33	17.72	0.67	3.77	1.15	silty clay to clay	UNDFND	UNDFD	11	.92
6.75	22.15	22.02	0.90	4.09	1.20	silty clay to clay	UNDFND	UNDFD	14	1.5
7.00	22.97	46.74	1.02	2.18	1.24	sandy silt to clayey silt	UNDFND	UNDFD	18	2.32
7.25	23.79	36.22	0.93	2.58	1.27	sandy silt to clayey silt	UNDFND	UNDFD	14	1.94
7.50	24.61	11.90	0.47	3.93	1.29	clay	UNDFND	UNDFD	11	1.2
7.75	25.43	15.60	0.66	4.24	1.31	clay	UNDFND	UNDFD	15	1.5
8.00	26.25	16.94	0.84	4.98	1.33	clay	UNDFND	UNDFD	16	.86
8.25	27.07	17.54	0.91	5.18	1.35	clay	UNDFND	UNDFD	17	1.2
8.50	27.89	19.28	0.94	4.87	1.37	clay	UNDFND	UNDFD	18	1.3
8.75	28.71	20.08	0.97	4.82	1.38	clay	UNDFND	UNDFD	19	1.02
9.00	29.53	19.10	1.03	5.38	1.40	clay	UNDFND	UNDFD	18	.97
9.25	30.35	26.32	1.25	4.73	1.42	clay	UNDFND	UNDFD	25	1.7
9.50	31.17	19.10	1.01	5.27	1.44	clay	UNDFND	UNDFD	18	1.6

Dr - All sands (Jamiołkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 18

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH	Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)	(%)	deg.	N	tsf

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 18

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-04-92

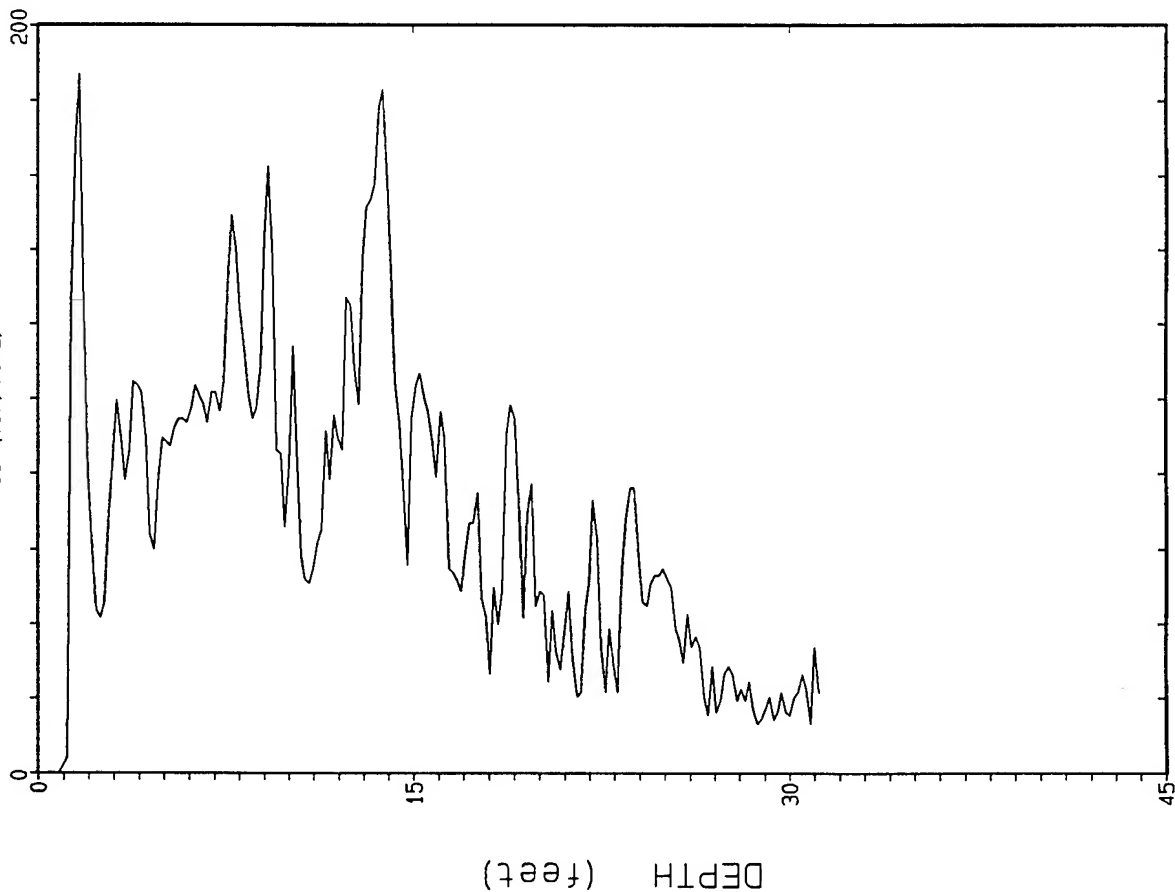
SOUNDING NO. : CPT-02 Pg 1 / 1

LOCATION : BLDG. 870

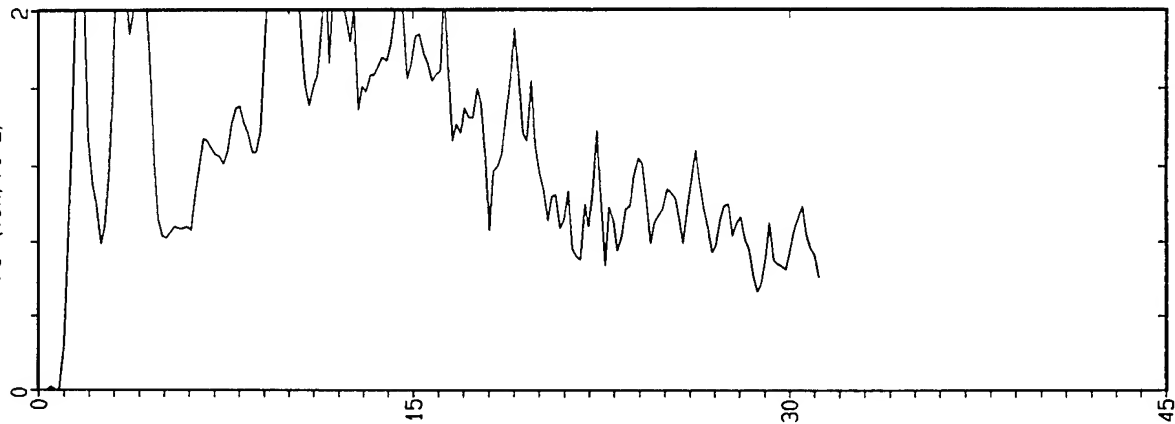
DEPTH TO WATER : 23.29 FT BLS

TERRA JOB NO. : 92-1016

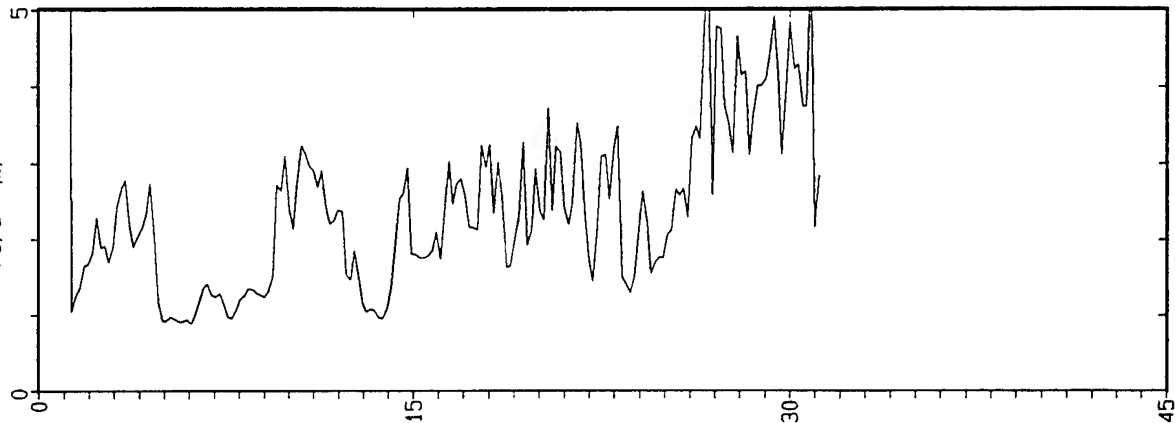
TIP RESISTANCE
 q_c (Ton/ft²)



LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/q (%)



Depth Increment : 05 m

Max Depth : 34.17 m

Contractor : TERRA TECH SW

Test Date : 08-04-92

Location : CPT-02

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	0.00	0.00	0.00	0.02	undefined	UNDFND	UNDFD	UDF	UNDEFINE
0.50	1.64	97.42	1.40	1.44	0.07	sand to silty sand	>90	>48	23	UNDEFINE
0.75	2.46	69.96	1.26	1.80	0.11	silty sand to sandy silt	80-90	>48	22	UNDEFINE
1.00	3.28	77.30	1.69	2.18	0.16	silty sand to sandy silt	80-90	46-48	25	UNDEFINE
1.25	4.10	94.96	2.07	2.18	0.20	silty sand to sandy silt	80-90	46-48	30	UNDEFINE
1.50	4.92	76.08	1.36	1.79	0.25	silty sand to sandy silt	70-80	44-46	24	UNDEFINE
1.75	5.74	91.52	0.86	0.94	0.29	sand to silty sand	80-90	44-46	22	UNDEFINE
2.00	6.56	98.84	1.06	1.08	0.34	sand to silty sand	80-90	44-46	24	UNDEFINE
2.25	7.38	99.66	1.27	1.27	0.38	sand to silty sand	80-90	44-46	24	UNDEFINE
2.50	8.20	131.60	1.43	1.08	0.43	sand to silty sand	80-90	44-46	32	UNDEFINE
2.75	9.02	109.22	1.41	1.29	0.47	sand to silty sand	70-80	44-46	26	UNDEFINE
3.00	9.84	107.58	2.18	2.02	0.52	silty sand to sandy silt	70-80	44-46	34	UNDEFINE
3.25	10.66	78.52	2.05	2.62	0.56	sandy silt to clayey silt	UNDFND	UNDFD	30	3.2
3.50	11.48	64.86	1.78	2.74	0.61	sandy silt to clayey silt	UNDFND	UNDFD	25	2.6
3.75	12.30	95.38	2.01	2.11	0.65	silty sand to sandy silt	70-80	42-44	30	UNDEFINE
4.00	13.12	124.06	1.71	1.38	0.70	sand to silty sand	70-80	42-44	30	UNDEFINE
4.25	13.94	166.12	1.71	1.03	0.74	sand	80-90	44-46	32	UNDEFINE
4.50	14.76	93.14	1.96	2.11	0.79	silty sand to sandy silt	60-70	40-42	30	UNDEFINE
4.75	15.58	100.48	1.80	1.79	0.83	silty sand to sandy silt	60-70	40-42	32	UNDEFINE
5.00	16.40	81.76	1.76	2.15	0.88	silty sand to sandy silt	60-70	40-42	26	UNDEFINE
5.25	17.22	55.94	1.41	2.53	0.92	sandy silt to clayey silt	UNDFND	UNDFD	21	2.2
5.50	18.04	51.44	1.33	2.59	0.97	sandy silt to clayey silt	UNDFND	UNDFD	20	2.1
5.75	18.86	65.48	1.35	2.06	1.01	silty sand to sandy silt	50-60	38-40	21	UNDEFINE
6.00	19.69	71.18	1.59	2.23	1.06	silty sand to sandy silt	50-60	38-40	23	UNDEFINE
6.25	20.51	41.88	1.10	2.63	1.11	sandy silt to clayey silt	UNDFND	UNDFD	16	1.6
6.50	21.33	35.38	0.93	2.63	1.15	sandy silt to clayey silt	UNDFND	UNDFD	14	1.4
6.75	22.15	41.88	0.87	2.08	1.20	sandy silt to clayey silt	UNDFND	UNDFD	16	1.6
7.00	22.97	37.02	1.00	2.69	1.24	sandy silt to clayey silt	UNDFND	UNDFD	14	1.4
7.25	23.79	59.40	0.94	1.58	1.28	silty sand to sandy silt	40-50	36-38	19	UNDEFINE
7.50	24.61	50.44	1.03	2.04	1.30	sandy silt to clayey silt	UNDFND	UNDFD	19	2.0
7.75	25.43	49.62	1.02	2.05	1.32	sandy silt to clayey silt	UNDFND	UNDFD	19	2.0
8.00	26.25	35.60	1.02	2.86	1.34	sandy silt to clayey silt	UNDFND	UNDFD	14	1.4
8.25	27.07	22.80	0.90	3.94	1.36	silty clay to clay	UNDFND	UNDFD	15	.8
8.50	27.89	23.98	0.93	3.87	1.38	silty clay to clay	UNDFND	UNDFD	15	.9
8.75	28.71	19.32	0.73	3.79	1.40	silty clay to clay	UNDFND	UNDFD	12	.7
9.00	29.53	16.46	0.71	4.33	1.42	clay	UNDFND	UNDFD	16	.6
9.25	30.35	18.94	0.77	4.05	1.44	silty clay to clay	UNDFND	UNDFD	12	.7
9.50	31.17	23.40	0.79	3.36	1.46	clayey silt to silty clay	UNDFND	UNDFD	11	.9

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH	Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	S
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)	(%)	deg.	N	

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-05-92

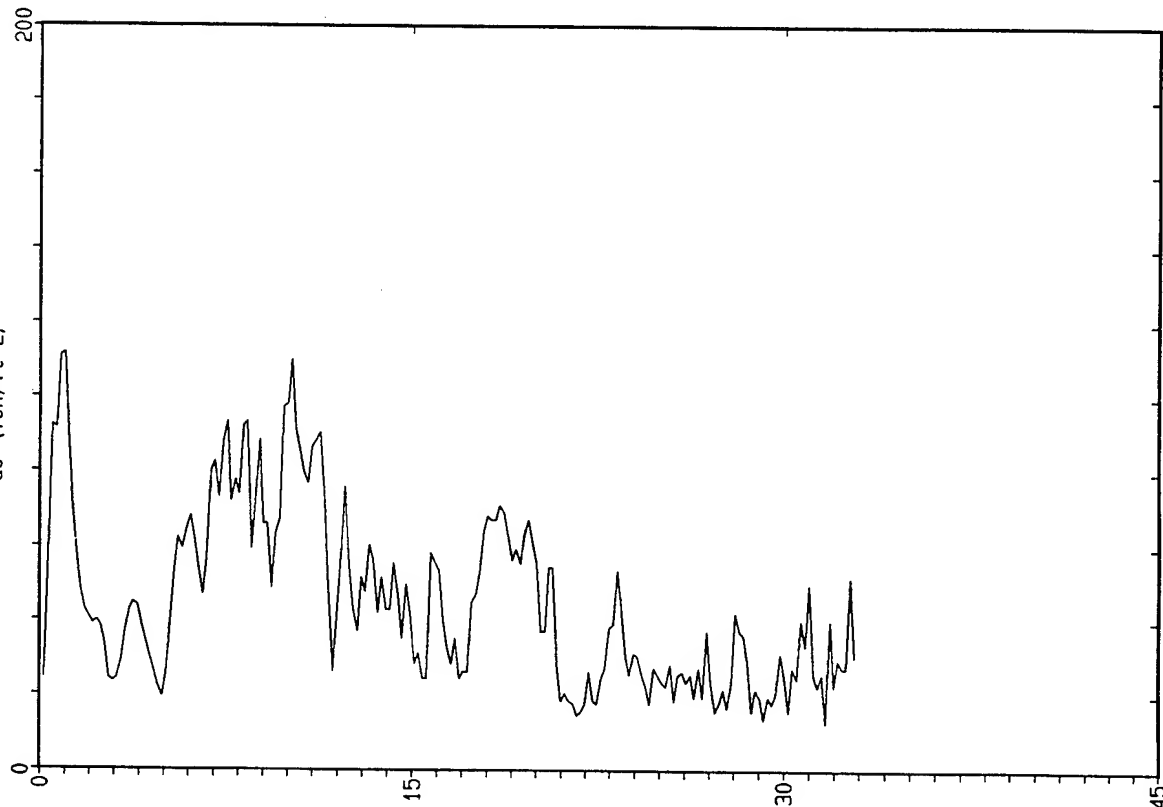
SOUNDING NO. : CPT-03 Pg 1 / 1

LOCATION : BLDG. 870

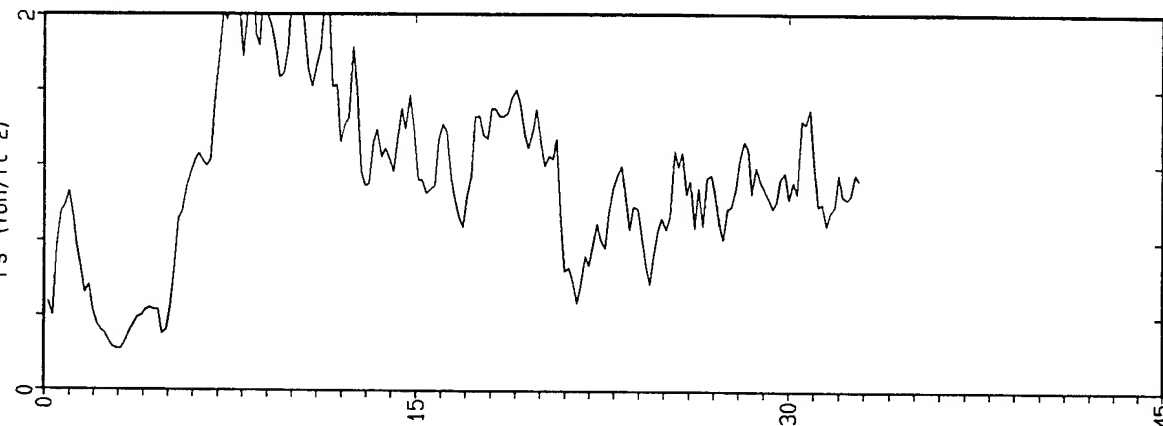
DEPTH TO WATER : 23.12 FT BLS

TERRA JOB NO. : 92-1016

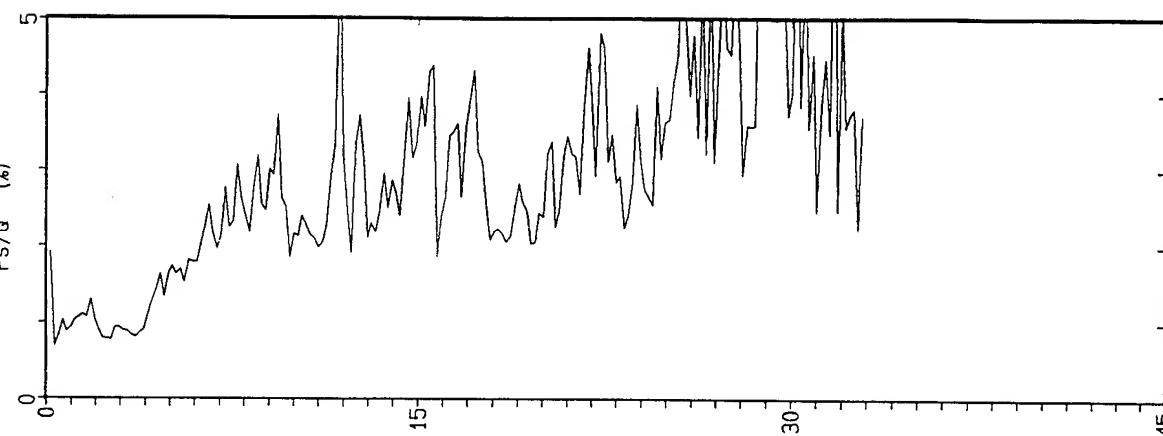
TIP RESISTANCE
 q_c (Ton/ft²)



LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-05-92

Location : CPT-03

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.05

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	75.40	0.71	0.94	0.02	sand to silty sand	>90	>48	18	UNDEFIN
0.50	1.64	76.36	0.79	1.03	0.07	sand to silty sand	>90	>48	18	UNDEFIN
0.75	2.46	40.14	0.39	0.98	0.11	silty sand to sandy silt	70-80	46-48	13	UNDEFIN
1.00	3.28	26.90	0.24	0.88	0.16	silty sand to sandy silt	50-60	42-44	9	UNDEFIN
1.25	4.10	41.50	0.38	0.91	0.20	silty sand to sandy silt	60-70	44-46	13	UNDEFIN
1.50	4.92	26.50	0.38	1.45	0.25	sandy silt to clayey silt	UNDFND	UNDFD	10	1
1.75	5.74	47.92	0.80	1.68	0.29	silty sand to sandy silt	60-70	42-44	15	UNDEFIN
2.00	6.56	59.04	1.21	2.05	0.34	silty sand to sandy silt	60-70	42-44	19	UNDEFIN
2.25	7.38	76.00	1.71	2.25	0.38	silty sand to sandy silt	70-80	44-46	24	UNDEFIN
2.50	8.20	82.00	2.04	2.49	0.43	sandy silt to clayey silt	UNDFND	UNDFD	31	3
2.75	9.02	75.96	2.10	2.76	0.47	sandy silt to clayey silt	UNDFND	UNDFD	29	3
3.00	9.84	68.56	1.79	2.61	0.52	sandy silt to clayey silt	UNDFND	UNDFD	26	2.8
3.25	10.66	93.14	2.07	2.22	0.56	silty sand to sandy silt	70-80	42-44	30	UNDEFIN
3.50	11.48	82.98	1.86	2.25	0.61	silty sand to sandy silt	60-70	42-44	26	UNDEFIN
3.75	12.30	49.88	1.49	2.98	0.65	sandy silt to clayey silt	UNDFND	UNDFD	19	2.0
4.00	13.12	46.74	1.36	2.90	0.70	sandy silt to clayey silt	UNDFND	UNDFD	18	1
4.25	13.94	50.66	1.29	2.55	0.74	sandy silt to clayey silt	UNDFND	UNDFD	19	2
4.50	14.76	46.00	1.39	3.02	0.79	sandy silt to clayey silt	UNDFND	UNDFD	18	1.7
4.75	15.58	30.02	1.15	3.84	0.83	clayey silt to silty clay	UNDFND	UNDFD	14	1.2
5.00	16.40	48.00	1.27	2.65	0.88	sandy silt to clayey silt	UNDFND	UNDFD	18	1
5.25	17.22	28.06	1.00	3.56	0.92	clayey silt to silty clay	UNDFND	UNDFD	13	1
5.50	18.04	55.34	1.42	2.57	0.97	sandy silt to clayey silt	UNDFND	UNDFD	21	2.2
5.75	18.86	67.60	1.49	2.21	1.01	silty sand to sandy silt	50-60	38-40	22	UNDEFIN
6.00	19.69	60.38	1.43	2.37	1.06	sandy silt to clayey silt	UNDFND	UNDFD	23	2
6.25	20.51	49.08	1.30	2.64	1.11	sandy silt to clayey silt	UNDFND	UNDFD	19	1.9
6.50	21.33	28.04	0.83	2.95	1.15	clayey silt to silty clay	UNDFND	UNDFD	13	1
6.75	22.15	18.30	0.64	3.49	1.20	silty clay to clay	UNDFND	UNDFD	12	1
7.00	22.97	25.14	0.90	3.57	1.24	clayey silt to silty clay	UNDFND	UNDFD	12	1
7.25	23.79	38.38	1.05	2.73	1.28	sandy silt to clayey silt	UNDFND	UNDFD	15	1.54
7.50	24.61	25.32	0.75	2.97	1.30	clayey silt to silty clay	UNDFND	UNDFD	12	1
7.75	25.43	25.32	0.97	3.83	1.32	silty clay to clay	UNDFND	UNDFD	16	1
8.00	26.25	23.76	1.10	4.63	1.34	clay	UNDFND	UNDFD	23	.93
8.25	27.07	25.34	1.06	4.18	1.36	silty clay to clay	UNDFND	UNDFD	16	1
8.50	27.89	18.90	0.95	5.01	1.38	clay	UNDFND	UNDFD	18	1
8.75	28.71	31.94	1.22	3.81	1.39	clayey silt to silty clay	UNDFND	UNDFD	15	1.26
9.00	29.53	18.30	1.04	5.68	1.41	clay	UNDFND	UNDFD	18	1
9.25	30.35	23.98	1.09	4.56	1.43	clay	UNDFND	UNDFD	23	1
9.50	31.17	34.48	1.31	3.81	1.45	clayey silt to silty clay	UNDFND	UNDFD	17	1

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	24.54	0.99	4.04	1.47	silty clay to clay	UNDFND	UNDFD	16	.
10.00	32.81	33.12	1.07	3.24	1.49	clayey silt to silty clay	UNDFND	UNDFD	16	1.

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) :

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-05-92

SOUNDING NO. : CPT-04 Pg 1 / 1

LOCATION : BLDG. 870

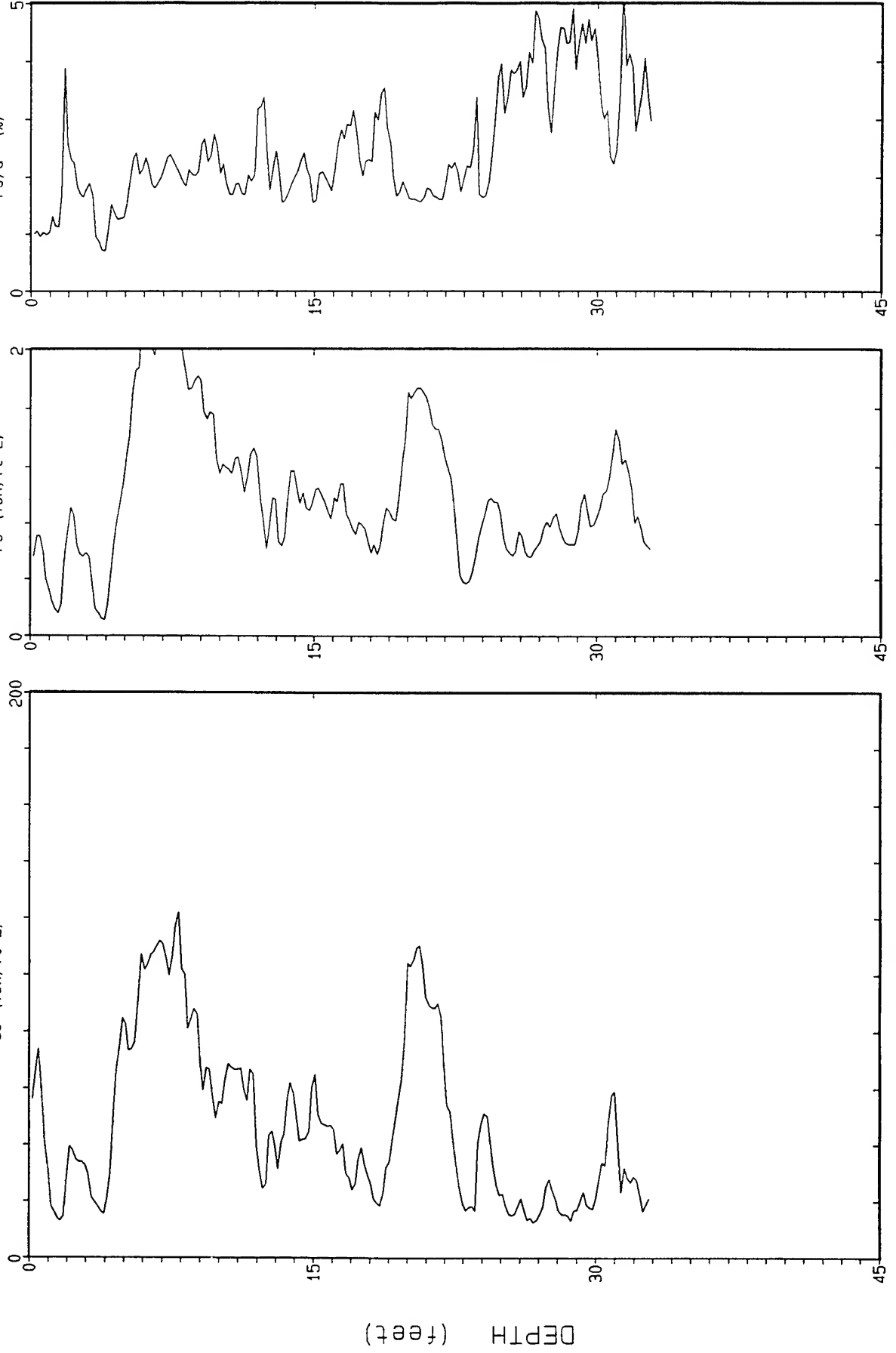
DEPTH TO WATER : 20.34 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : 05 m

Max Depth : 32.81 ft

Contractor : TERRA TECH SW
 Location : CPT-04
 Job No. : 92-1016
 Tot. Unit Wt. (avg) : 110 pcf

Test Date : 08-05-92
 Elevation : UNKNOWN
 Water table (meters) : 6.2

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	58.96	0.60	1.01	0.02	silty sand to sandy silt	>90	>48	19	UNDEFINED
0.50	1.64	18.54	0.23	1.22	0.07	sandy silt to clayey silt	UNDFND	UNDFD	7	.74
0.75	2.46	31.06	0.74	2.39	0.11	sandy silt to clayey silt	UNDFND	UNDFD	12	1.21
1.00	3.28	30.18	0.53	1.76	0.16	sandy silt to clayey silt	UNDFND	UNDFD	12	1.25
1.25	4.10	18.06	0.16	0.89	0.20	sandy silt to clayey silt	UNDFND	UNDFD	7	.74
1.50	4.92	60.80	0.80	1.32	0.25	silty sand to sandy silt	70-80	44-46	19	UNDEFINED
1.75	5.74	79.64	1.63	2.04	0.29	silty sand to sandy silt	70-80	44-46	25	UNDEFINED
2.00	6.56	105.64	2.18	2.07	0.34	silty sand to sandy silt	80-90	44-46	34	UNDEFINED
2.25	7.38	107.74	2.32	2.15	0.38	silty sand to sandy silt	80-90	44-46	34	UNDEFINED
2.50	8.20	109.80	2.27	2.06	0.43	silty sand to sandy silt	80-90	44-46	35	UNDEFINED
2.75	9.02	81.90	1.77	2.17	0.47	silty sand to sandy silt	70-80	42-44	26	UNDEFINED
3.00	9.84	59.84	1.50	2.51	0.52	sandy silt to clayey silt	UNDFND	UNDFD	23	2.47
3.25	10.66	61.80	1.18	1.91	0.56	silty sand to sandy silt	60-70	40-42	20	UNDEFINED
3.50	11.48	63.18	1.17	1.85	0.61	silty sand to sandy silt	60-70	40-42	20	UNDEFINED
3.75	12.30	45.26	1.14	2.52	0.65	sandy silt to clayey silt	UNDFND	UNDFD	17	1.85
4.00	13.12	37.02	0.80	2.17	0.70	sandy silt to clayey silt	UNDFND	UNDFD	14	1.51
4.25	13.94	52.22	0.93	1.78	0.74	silty sand to sandy silt	50-60	38-40	17	UNDEFINED
4.50	14.76	43.98	0.96	2.19	0.79	sandy silt to clayey silt	UNDFND	UNDFD	17	1.79
4.75	15.58	54.16	1.00	1.84	0.83	silty sand to sandy silt	50-60	38-40	17	UNDEFINED
5.00	16.40	42.74	0.94	2.21	0.88	sandy silt to clayey silt	UNDFND	UNDFD	16	1.74
5.25	17.22	29.68	0.85	2.86	0.92	clayey silt to silty clay	UNDFND	UNDFD	14	1.19
5.50	18.04	32.42	0.72	2.23	0.97	sandy silt to clayey silt	UNDFND	UNDFD	12	1.31
5.75	18.86	22.66	0.72	3.17	1.01	clayey silt to silty clay	UNDFND	UNDFD	11	.90
6.00	19.69	48.62	0.94	1.94	1.06	silty sand to sandy silt	40-50	36-38	16	UNDEFINED
6.25	20.51	99.66	1.64	1.65	1.11	silty sand to sandy silt	60-70	40-42	32	UNDEFINED
6.50	21.33	96.86	1.64	1.70	1.13	silty sand to sandy silt	60-70	40-42	31	UNDEFINED
6.75	22.15	77.06	1.35	1.76	1.15	silty sand to sandy silt	50-60	38-40	25	UNDEFINED
7.00	22.97	33.72	0.71	2.10	1.17	sandy silt to clayey silt	UNDFND	UNDFD	13	1.35
7.25	23.79	22.02	0.49	2.24	1.19	sandy silt to clayey silt	UNDFND	UNDFD	8	.86
7.50	24.61	44.46	0.91	2.04	1.21	sandy silt to clayey silt	UNDFND	UNDFD	17	1.79
7.75	25.43	20.78	0.75	3.60	1.23	silty clay to clay	UNDFND	UNDFD	13	.80
8.00	26.25	17.38	0.64	3.71	1.25	silty clay to clay	UNDFND	UNDFD	11	.66
8.25	27.07	13.78	0.61	4.41	1.27	clay	UNDFND	UNDFD	13	.51
8.50	27.89	23.14	0.81	3.51	1.29	clayey silt to silty clay	UNDFND	UNDFD	11	.90
8.75	28.71	15.12	0.69	4.54	1.31	clay	UNDFND	UNDFD	14	.56
9.00	29.53	19.20	0.84	4.40	1.33	clay	UNDFND	UNDFD	18	.73
9.25	30.35	23.46	0.87	3.69	1.35	silty clay to clay	UNDFND	UNDFD	15	.90
9.50	31.17	47.28	1.26	2.66	1.37	sandy silt to clayey silt	UNDFND	UNDFD	18	1.89

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	27.68	1.10	3.96	1.39	silty clay to clay	UNDFND	UNDFD	18	1.06
10.00	32.81	21.16	0.71	3.36	1.41	clayey silt to silty clay	UNDFND	UNDFD	10	

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-05-92

SOUNDING NO. : CPT-05 Pg 1 / 1

LOCATION : BLDG. 870

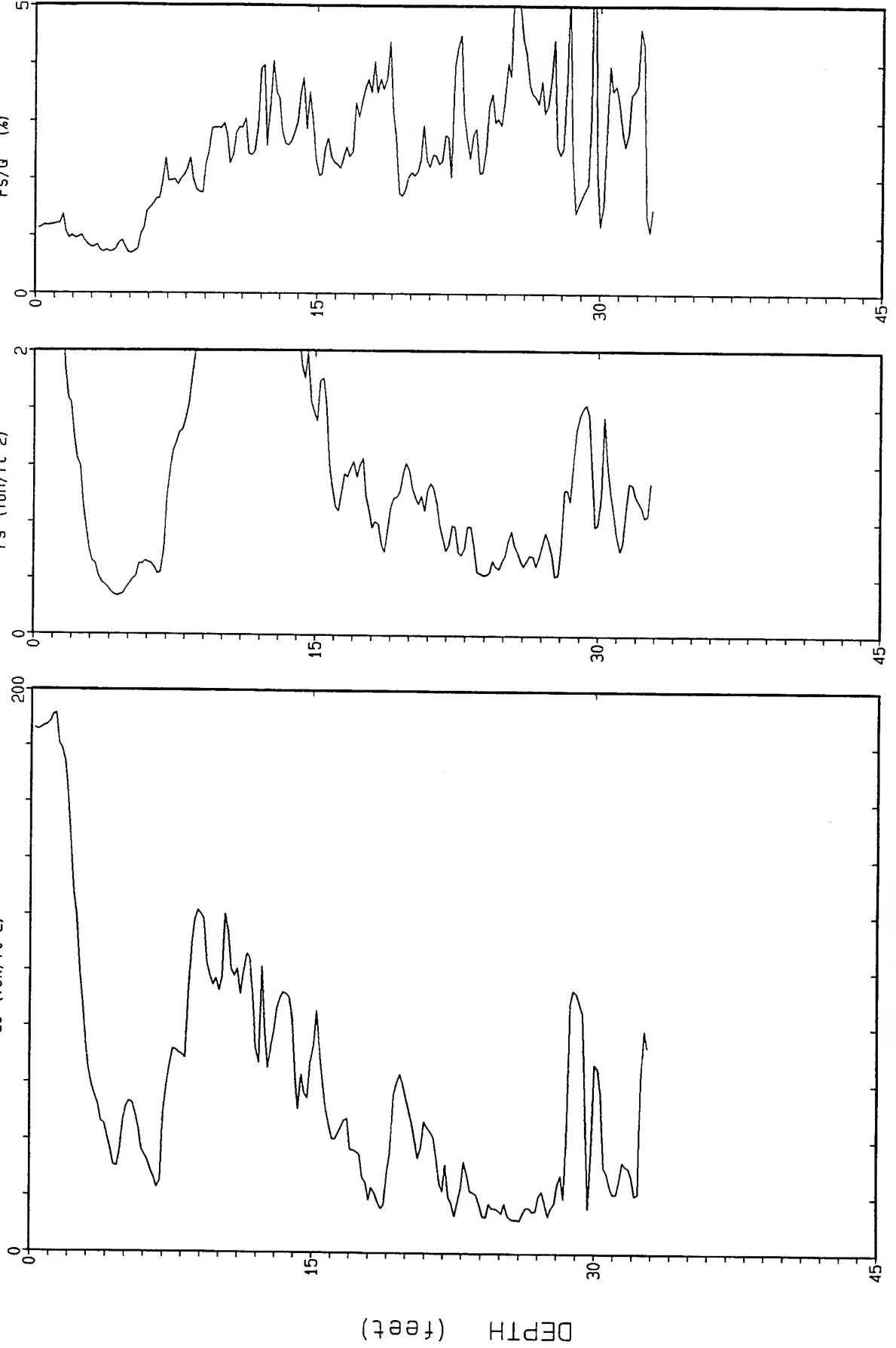
DEPTH TO WATER : 22.14 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

Contractor : TERRA TECH SW

Test Date : 08-05-92

Location : CPT-05

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 6.75

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	186.56	2.18	1.17	0.02	sand	>90	>48	36	UNDEFIN
0.50	1.64	186.20	2.26	1.21	0.07	sand	>90	>48	36	UNDEFIN
0.75	2.46	145.50	1.43	0.98	0.11	sand	>90	>48	28	UNDEFIN
1.00	3.28	77.48	0.66	0.85	0.16	sand to silty sand	80-90	46-48	19	UNDEFIN
1.25	4.10	48.06	0.35	0.74	0.20	sand to silty sand	60-70	44-46	12	UNDEFIN
1.50	4.92	35.92	0.29	0.81	0.25	silty sand to sandy silt	50-60	42-44	11	UNDEFIN
1.75	5.74	50.04	0.43	0.86	0.29	silty sand to sandy silt	60-70	42-44	16	UNDEFIN
2.00	6.56	31.42	0.49	1.55	0.34	sandy silt to clayey silt	UNDFND	UNDFD	12	1.0
2.25	7.38	44.38	0.89	2.01	0.38	sandy silt to clayey silt	UNDFND	UNDFD	17	1.6
2.50	8.20	70.52	1.48	2.10	0.43	silty sand to sandy silt	60-70	42-44	23	UNDEFIN
2.75	9.02	112.18	2.14	1.91	0.47	silty sand to sandy silt	80-90	44-46	36	UNDEFIN
3.00	9.84	102.44	2.85	2.78	0.52	sandy silt to clayey silt	UNDFND	UNDFD	39	3.92
3.25	10.66	105.24	2.76	2.62	0.56	silty sand to sandy silt	70-80	42-44	34	UNDEFIN
3.50	11.48	99.24	2.71	2.73	0.61	sandy silt to clayey silt	UNDFND	UNDFD	38	3.0
3.75	12.30	87.32	2.67	3.06	0.65	sandy silt to clayey silt	UNDFND	UNDFD	33	3.3
4.00	13.12	76.24	2.58	3.38	0.70	sandy silt to clayey silt	UNDFND	UNDFD	29	2.80
4.25	13.94	89.48	2.44	2.73	0.74	sandy silt to clayey silt	UNDFND	UNDFD	34	3.0
4.50	14.76	57.46	1.91	3.32	0.79	sandy silt to clayey silt	UNDFND	UNDFD	22	2.0
4.75	15.58	71.60	1.67	2.33	0.83	silty sand to sandy silt	50-60	40-42	23	UNDEFIN
5.00	16.40	43.92	1.01	2.31	0.88	sandy silt to clayey silt	UNDFND	UNDFD	17	1.0
5.25	17.22	42.40	1.16	2.73	0.92	sandy silt to clayey silt	UNDFND	UNDFD	16	1.0
5.50	18.04	28.22	1.02	3.60	0.97	clayey silt to silty clay	UNDFND	UNDFD	14	1.04
5.75	18.86	19.00	0.72	3.77	1.01	silty clay to clay	UNDFND	UNDFD	12	0.75
6.00	19.69	48.70	1.01	2.07	1.06	sandy silt to clayey silt	UNDFND	UNDFD	19	1.0
6.25	20.51	50.02	1.06	2.13	1.11	sandy silt to clayey silt	UNDFND	UNDFD	19	1.88
6.50	21.33	41.10	1.00	2.44	1.15	sandy silt to clayey silt	UNDFND	UNDFD	16	1.53
6.75	22.15	30.54	0.73	2.38	1.20	sandy silt to clayey silt	UNDFND	UNDFD	12	1.0
7.00	22.97	18.38	0.67	3.62	1.23	silty clay to clay	UNDFND	UNDFD	12	0.42
7.25	23.79	24.92	0.61	2.46	1.25	sandy silt to clayey silt	UNDFND	UNDFD	10	0.90
7.50	24.61	15.36	0.47	3.03	1.27	clayey silt to silty clay	UNDFND	UNDFD	7	0.42
7.75	25.43	15.34	0.59	3.87	1.29	silty clay to clay	UNDFND	UNDFD	10	0.42
8.00	26.25	12.50	0.56	4.46	1.31	clay	UNDFND	UNDFD	12	0.42
8.25	27.07	16.56	0.56	3.41	1.33	silty clay to clay	UNDFND	UNDFD	11	0.58
8.50	27.89	17.46	0.57	3.24	1.34	clayey silt to silty clay	UNDFND	UNDFD	8	0.42
8.75	28.71	40.00	0.97	2.43	1.36	sandy silt to clayey silt	UNDFND	UNDFD	15	1.0
9.00	29.53	82.06	1.56	1.90	1.38	silty sand to sandy silt	50-60	38-40	26	UNDEFIN
9.25	30.35	48.38	1.06	2.20	1.40	sandy silt to clayey silt	UNDFND	UNDFD	19	1.0
9.50	31.17	25.04	0.88	3.51	1.42	clayey silt to silty clay	UNDFND	UNDFD	12	0.42

Dr - All sands (Jamolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	29.32	0.94	3.21	1.44	clayey silt to silty clay	UNDFND	UNDFD	14	1.06
10.00	32.81	51.04	0.93	1.81	1.46	silty sand to sandy silt	40-50	34-36	16	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-05-92

SOUNDING NO. : CPT-06 Pg 1 / 1

LOCATION : BLDG. 870

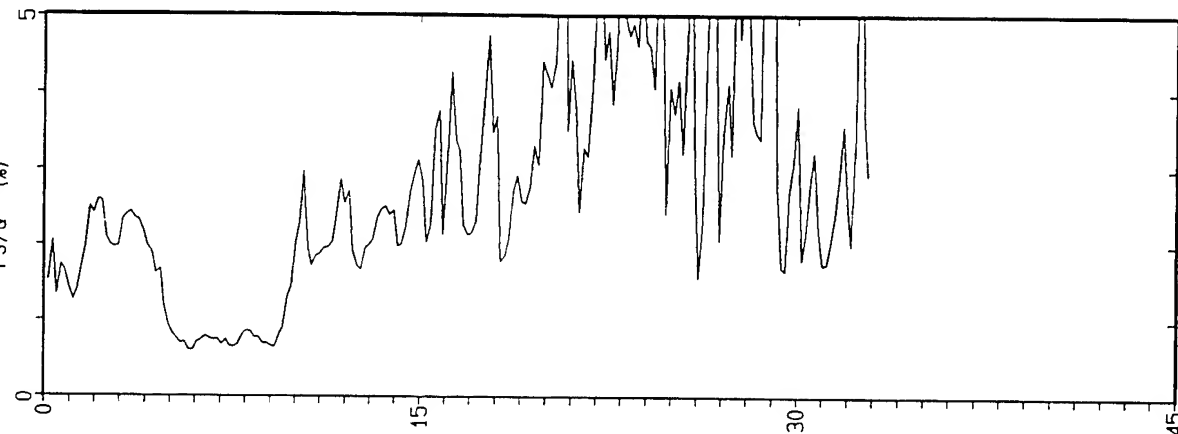
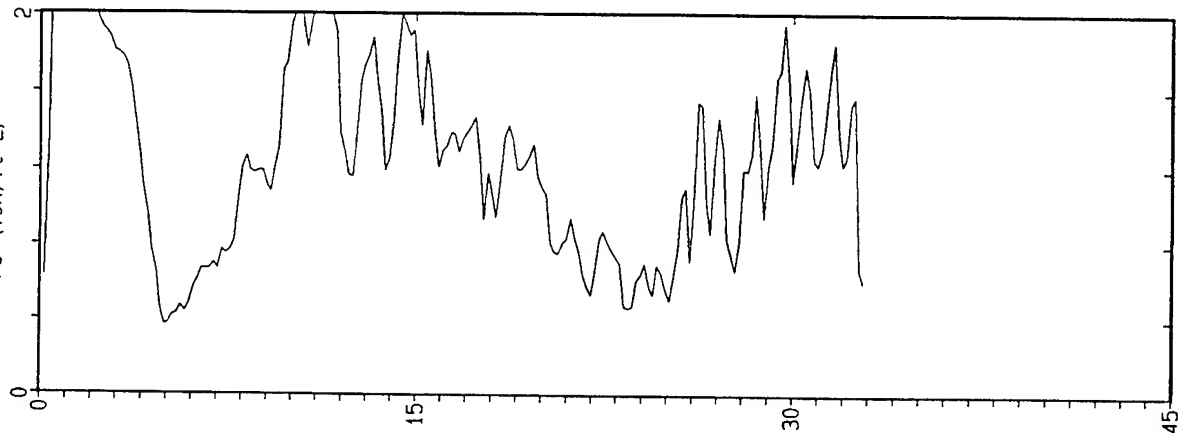
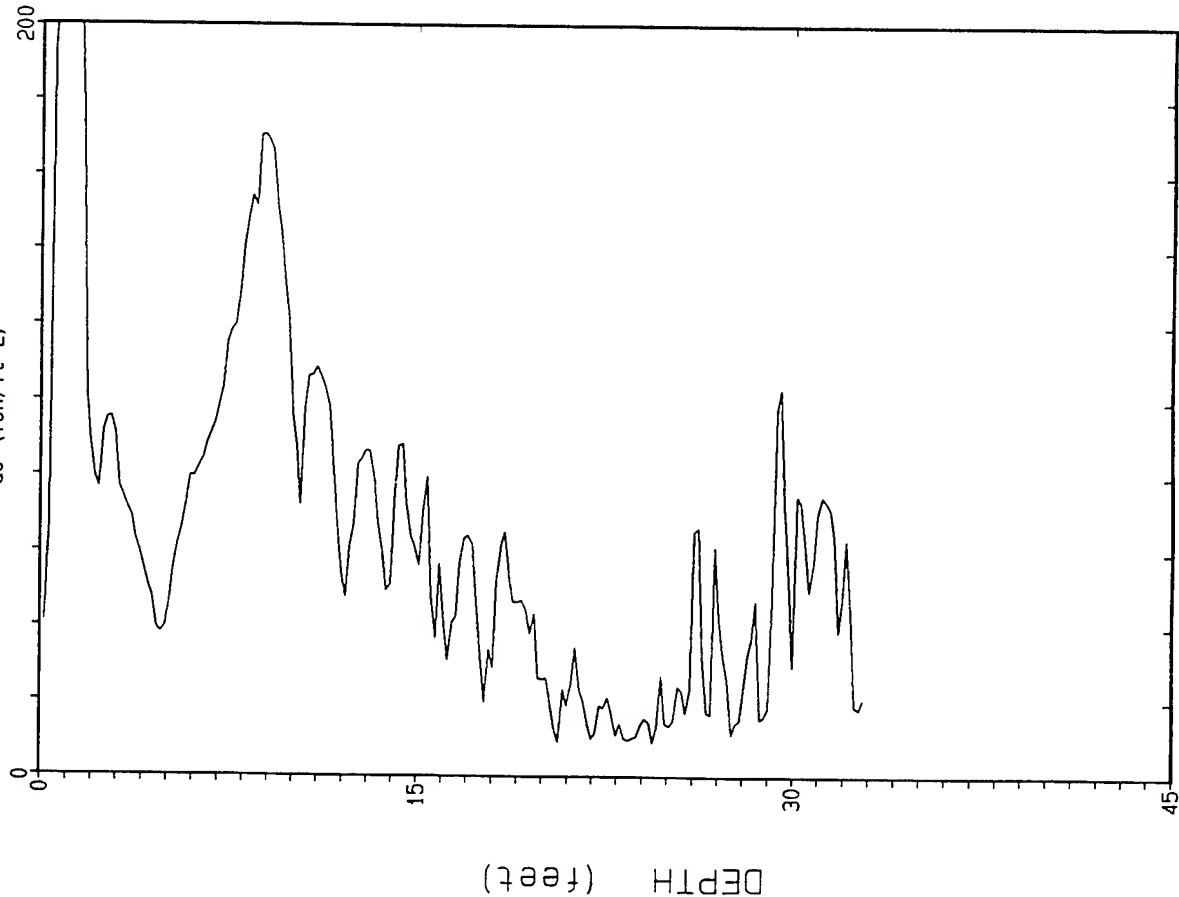
DEPTH TO WATER : 22.14 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth :

32.81 ft

Contractor : TERRA TECH SW

Test Date : 08-05-92

Location : CPT-06

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 6.75

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	154.56	2.51	1.62	0.02	sand to silty sand	>90	>48	37	UNDEFINE
0.50	1.64	262.60	3.95	1.50	0.07	sand to silty sand	>90	>48	>50	UNDEFINE
0.75	2.46	87.74	2.13	2.43	0.11	silty sand to sandy silt	>90	>48	28	UNDEFINE
1.00	3.28	86.70	1.84	2.12	0.16	silty sand to sandy silt	80-90	>48	28	UNDEFINE
1.25	4.10	63.72	1.45	2.27	0.20	sandy silt to clayey silt	UNDFND	UNDFD	24	2.4
1.50	4.92	43.12	0.64	1.49	0.25	silty sand to sandy silt	60-70	42-44	14	UNDEFINE
1.75	5.74	60.26	0.43	0.71	0.29	sand to silty sand	60-70	44-46	14	UNDEFINE
2.00	6.56	82.96	0.60	0.72	0.34	sand to silty sand	70-80	44-46	20	UNDEFINE
2.25	7.38	100.50	0.71	0.71	0.38	sand to silty sand	80-90	44-46	24	UNDEFINE
2.50	8.20	131.36	1.02	0.78	0.43	sand	80-90	44-46	25	UNDEFINE
2.75	9.02	163.28	1.17	0.72	0.47	sand	>90	46-48	31	UNDEFINE
3.00	9.84	143.06	1.41	0.99	0.52	sand	80-90	44-46	27	UNDEFINE
3.25	10.66	92.22	1.98	2.14	0.56	silty sand to sandy silt	70-80	42-44	29	UNDEFINE
3.50	11.48	104.72	2.03	1.94	0.61	silty sand to sandy silt	70-80	42-44	33	UNDEFINE
3.75	12.30	62.66	1.55	2.48	0.65	sandy silt to clayey silt	UNDFND	UNDFD	24	2.3
4.00	13.12	81.74	1.55	1.89	0.70	silty sand to sandy silt	60-70	40-42	26	UNDEFINE
4.25	13.94	61.52	1.50	2.44	0.74	sandy silt to clayey silt	UNDFND	UNDFD	24	2.3
4.50	14.76	77.28	1.81	2.34	0.79	silty sand to sandy silt	60-70	40-42	25	UNDEFINE
4.75	15.58	63.08	1.69	2.68	0.83	sandy silt to clayey silt	UNDFND	UNDFD	24	2.3
5.00	16.40	41.22	1.32	3.21	0.88	clayey silt to silty clay	UNDFND	UNDFD	20	1.5
5.25	17.22	57.78	1.37	2.37	0.92	sandy silt to clayey silt	UNDFND	UNDFD	22	2.1
5.50	18.04	32.10	1.18	3.68	0.97	clayey silt to silty clay	UNDFND	UNDFD	15	1.1
5.75	18.86	55.74	1.25	2.24	1.01	sandy silt to clayey silt	UNDFND	UNDFD	21	2.1
6.00	19.69	43.94	1.25	2.84	1.06	sandy silt to clayey silt	UNDFND	UNDFD	17	1.6
6.25	20.51	21.86	0.98	4.48	1.11	clay	UNDFND	UNDFD	21	.7
6.50	21.33	22.04	0.83	3.78	1.15	silty clay to clay	UNDFND	UNDFD	14	.8
6.75	22.15	15.72	0.63	4.02	1.20	silty clay to clay	UNDFND	UNDFD	10	.5
7.00	22.97	17.06	0.80	4.70	1.23	clay	UNDFND	UNDFD	16	.6
7.25	23.79	10.80	0.54	5.02	1.25	clay	UNDFND	UNDFD	10	.3
7.50	24.61	12.98	0.63	4.84	1.27	clay	UNDFND	UNDFD	12	.4
7.75	25.43	18.64	0.62	3.34	1.29	clayey silt to silty clay	UNDFND	UNDFD	9	.6
8.00	26.25	38.92	1.09	2.79	1.31	sandy silt to clayey silt	UNDFND	UNDFD	15	1.4
8.25	27.07	33.80	1.23	3.63	1.33	clayey silt to silty clay	UNDFND	UNDFD	16	1.2
8.50	27.89	19.56	0.87	4.47	1.34	clay	UNDFND	UNDFD	19	.6
8.75	28.71	30.92	1.31	4.25	1.36	silty clay to clay	UNDFND	UNDFD	20	1.1
9.00	29.53	56.54	1.37	2.43	1.38	sandy silt to clayey silt	UNDFND	UNDFD	22	2.1
9.25	30.35	60.50	1.53	2.52	1.40	sandy silt to clayey silt	UNDFND	UNDFD	23	2.2
9.50	31.17	62.54	1.42	2.27	1.42	sandy silt to clayey silt	UNDFND	UNDFD	24	2.3

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	
9.75	31.99	59.02	1.53	2.59	1.44	sandy silt to clayey silt	UNDFND	UNDFD	23	2.2
10.00	32.81	32.80	1.13	3.43	1.46	clayey silt to silty clay	UNDFND	UNDFD	16	

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-05-92

SOUNDING NO. : CPT-07 Pg 1 / 1

LOCATION : BLDG. 870

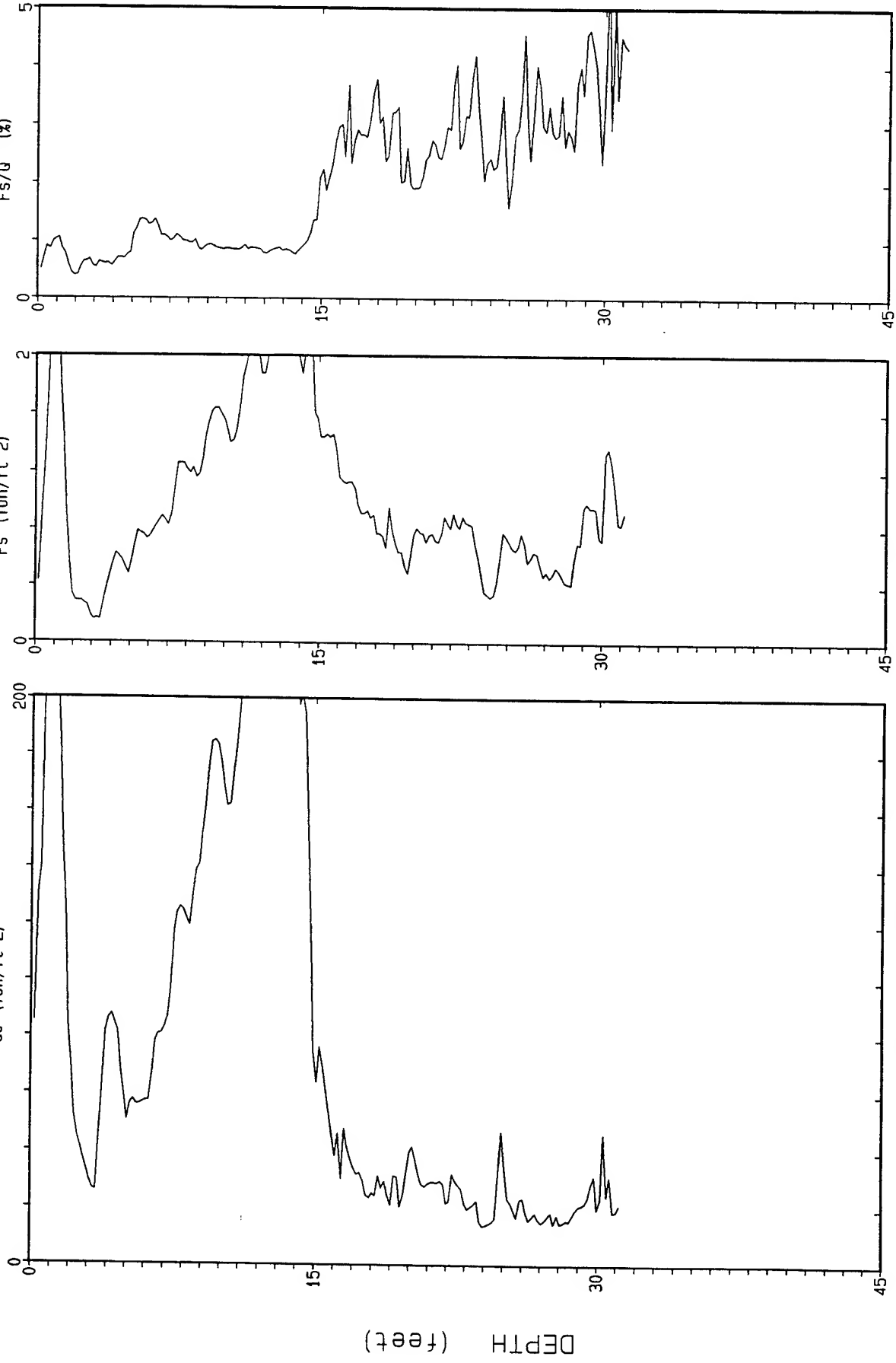
DEPTH TO WATER : 21.16 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 31.17 ft

Contractor : TERRA TECH SW
 Location : CPT-07
 Job No. : 92-1016
 Tot. Unit Wt. (avg) : 110 pcf

Test Date : 08-05-92
 Elevation : UNKNOWN
 Water table (meters) : 6.45

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su
0.25	0.82	163.16	1.39	0.85	0.02	sand	>90	>48	31	UNDEFIN
0.50	1.64	206.00	1.85	0.90	0.07	sand	>90	>48	39	UNDEFIN
0.75	2.46	75.80	0.35	0.47	0.11	sand to silty sand	80-90	>48	18	UNDEFIN
1.00	3.28	33.68	0.21	0.62	0.16	silty sand to sandy silt	60-70	44-46	11	UNDEFIN
1.25	4.10	60.24	0.37	0.61	0.20	sand to silty sand	70-80	44-46	14	UNDEFIN
1.50	4.92	76.70	0.57	0.74	0.25	sand to silty sand	70-80	44-46	18	UNDEFIN
1.75	5.74	55.42	0.71	1.29	0.29	silty sand to sandy silt	60-70	42-44	18	UNDEFIN
2.00	6.56	63.36	0.79	1.25	0.34	silty sand to sandy silt	60-70	42-44	20	UNDEFIN
2.25	7.38	85.96	0.91	1.06	0.38	sand to silty sand	70-80	44-46	21	UNDEFIN
2.50	8.20	123.18	1.24	1.01	0.43	sand to silty sand	80-90	44-46	29	UNDEFIN
2.75	9.02	136.96	1.26	0.92	0.47	sand	80-90	44-46	26	UNDEFIN
3.00	9.84	178.46	1.61	0.90	0.52	sand	>90	46-48	34	UNDEFIN
3.25	10.66	168.66	1.47	0.87	0.56	sand	80-90	44-46	32	UNDEFIN
3.50	11.48	213.58	1.92	0.90	0.61	sand	>90	46-48	41	UNDEFIN
3.75	12.30	234.12	1.96	0.84	0.65	sand	>90	46-48	45	UNDEFIN
4.00	13.12	257.02	2.25	0.87	0.70	sand	>90	46-48	49	UNDEFIN
4.25	13.94	253.00	2.13	0.84	0.74	sand	>90	46-48	48	UNDEFIN
4.50	14.76	173.86	1.99	1.14	0.79	sand	80-90	44-46	33	UNDEFIN
4.75	15.58	69.22	1.47	2.12	0.83	silty sand to sandy silt	50-60	40-42	22	UNDEFIN
5.00	16.40	42.76	1.25	2.92	0.88	sandy silt to clayey silt	UNDFND	UNDFD	16	1.6
5.25	17.22	38.62	1.05	2.71	0.92	sandy silt to clayey silt	UNDFND	UNDFD	15	1.4
5.50	18.04	27.20	0.88	3.23	0.97	clayey silt to silty clay	UNDFND	UNDFD	13	1.0
5.75	18.86	27.42	0.79	2.87	1.01	clayey silt to silty clay	UNDFND	UNDFD	13	1.0
6.00	19.69	25.82	0.60	2.33	1.06	sandy silt to clayey silt	UNDFND	UNDFD	10	0.9
6.25	20.51	36.46	0.75	2.06	1.11	sandy silt to clayey silt	UNDFND	UNDFD	14	1.3
6.50	21.33	28.64	0.73	2.56	1.15	sandy silt to clayey silt	UNDFND	UNDFD	11	1.0
6.75	22.15	26.36	0.84	3.20	1.18	clayey silt to silty clay	UNDFND	UNDFD	13	0.9
7.00	22.97	27.82	0.85	3.04	1.20	clayey silt to silty clay	UNDFND	UNDFD	13	1.0
7.25	23.79	19.98	0.59	2.95	1.22	clayey silt to silty clay	UNDFND	UNDFD	10	0.7
7.50	24.61	14.92	0.40	2.69	1.24	clayey silt to silty clay	UNDFND	UNDFD	7	0.5
7.75	25.43	31.88	0.71	2.23	1.26	sandy silt to clayey silt	UNDFND	UNDFD	12	1.1
8.00	26.25	20.36	0.66	3.26	1.27	clayey silt to silty clay	UNDFND	UNDFD	10	0.7
8.25	27.07	16.54	0.56	3.37	1.29	silty clay to clay	UNDFND	UNDFD	11	0.5
8.50	27.89	16.80	0.49	2.92	1.31	clayey silt to silty clay	UNDFND	UNDFD	8	0.5
8.75	28.71	15.74	0.51	3.23	1.33	silty clay to clay	UNDFND	UNDFD	10	0.5
9.00	29.53	21.42	0.90	4.22	1.35	silty clay to clay	UNDFND	UNDFD	14	0.7
9.25	30.35	29.84	1.02	3.40	1.37	clayey silt to silty clay	UNDFND	UNDFD	14	0.0
9.50	31.17	22.82	0.98	4.30	1.39	silty clay to clay	UNDFND	UNDFD	15	0.8

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-06-92

SOUNDING NO. : CPT-08 Pg 1 / 1

LOCATION : BLDG. 870

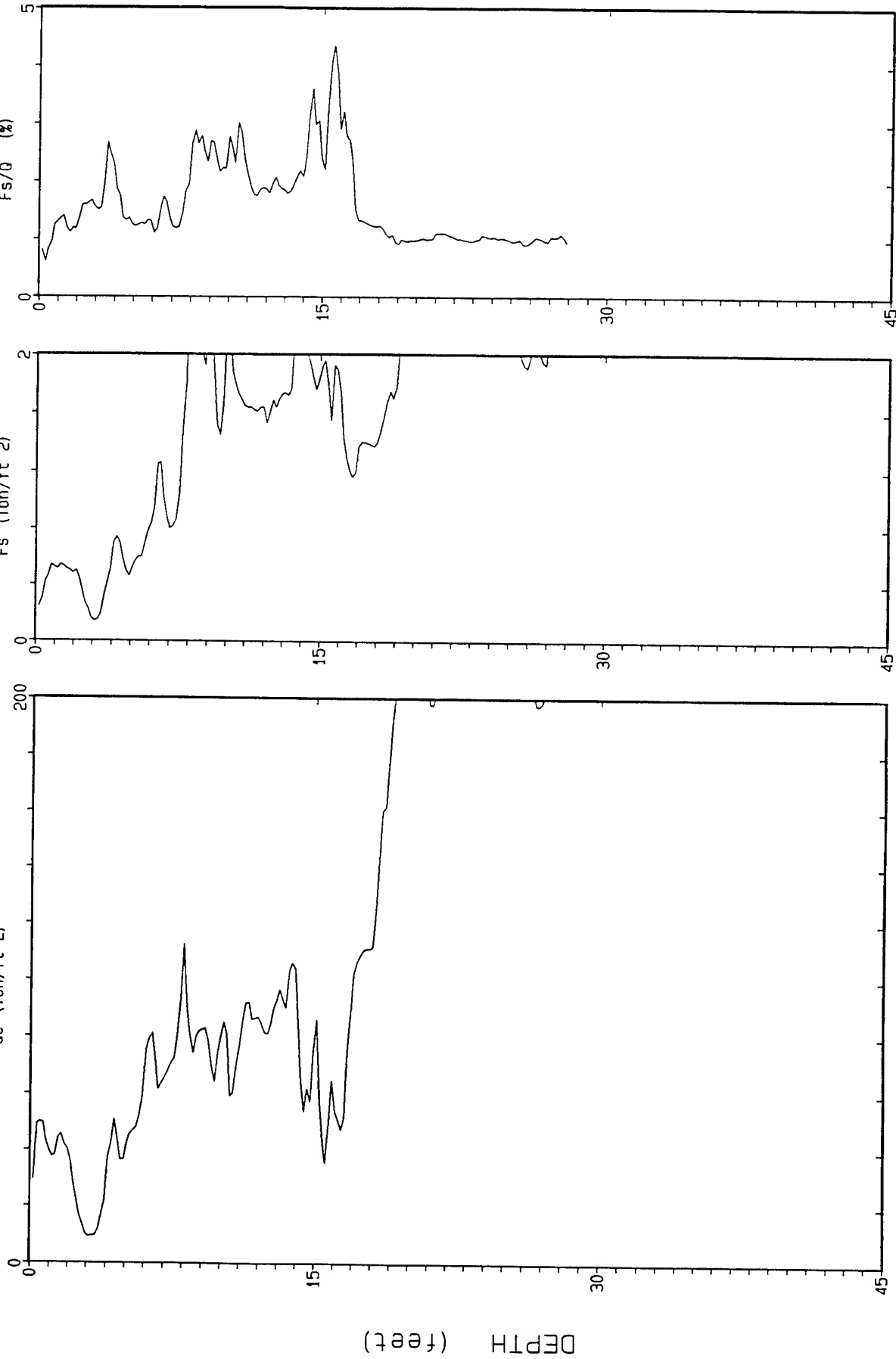
DEPTH TO WATER : 23.29 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 27.89 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-06-92

Location : CPT-08

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	44.18	0.39	0.89	0.02	silty sand to sandy silt	>90	>48	14	UNDEFINE
0.50	1.64	41.00	0.52	1.27	0.07	silty sand to sandy silt	70-80	>48	13	UNDEFINE
0.75	2.46	33.58	0.46	1.36	0.11	silty sand to sandy silt	60-70	44-46	11	UNDEFINE
1.00	3.28	11.86	0.19	1.60	0.16	clayey silt to silty clay	UNDFND	UNDFD	6	.8
1.25	4.10	19.48	0.43	2.19	0.20	sandy silt to clayey silt	UNDFND	UNDFD	7	1.3
1.50	4.92	41.94	0.60	1.42	0.25	silty sand to sandy silt	60-70	42-44	13	UNDEFINE
1.75	5.74	46.96	0.60	1.27	0.29	silty sand to sandy silt	60-70	42-44	15	UNDEFINE
2.00	6.56	73.48	1.01	1.38	0.34	silty sand to sandy silt	70-80	44-46	23	UNDEFINE
2.25	7.38	66.04	0.88	1.33	0.38	silty sand to sandy silt	60-70	42-44	21	UNDEFINE
2.50	8.20	89.72	1.99	2.21	0.43	silty sand to sandy silt	70-80	44-46	29	UNDEFINE
2.75	9.02	79.98	2.09	2.61	0.47	sandy silt to clayey silt	UNDFND	UNDFD	31	5.6
3.00	9.84	73.84	1.74	2.36	0.52	silty sand to sandy silt	60-70	42-44	24	UNDEFINE
3.25	10.66	73.22	1.97	2.70	0.56	sandy silt to clayey silt	UNDFND	UNDFD	28	5.1
3.50	11.48	83.12	1.65	1.98	0.61	silty sand to sandy silt	60-70	42-44	27	UNDEFINE
3.75	12.30	85.16	1.60	1.88	0.65	silty sand to sandy silt	60-70	42-44	27	UNDEFINE
4.00	13.12	89.02	1.70	1.91	0.70	silty sand to sandy silt	60-70	42-44	28	UNDEFINE
4.25	13.94	99.38	2.03	2.05	0.74	silty sand to sandy silt	70-80	42-44	32	UNDEFINE
4.50	14.76	64.42	1.93	3.00	0.79	sandy silt to clayey silt	UNDFND	UNDFD	25	4.5
4.75	15.58	60.02	1.81	3.01	0.83	sandy silt to clayey silt	UNDFND	UNDFD	23	4.2
5.00	16.40	53.40	1.66	3.10	0.88	sandy silt to clayey silt	UNDFND	UNDFD	20	3.7
5.25	17.22	84.86	1.27	1.49	0.92	silty sand to sandy silt	60-70	40-42	27	UNDEFINE
5.50	18.04	110.78	1.39	1.25	0.97	sand to silty sand	70-80	40-42	27	UNDEFINE
5.75	18.86	152.66	1.63	1.07	1.01	sand	70-80	42-44	29	UNDEFINE
6.00	19.69	206.12	2.01	0.98	1.06	sand	80-90	42-44	39	UNDEFINE
6.25	20.51	206.32	2.07	1.00	1.11	sand	80-90	42-44	40	UNDEFINE
6.50	21.33	203.24	2.19	1.08	1.15	sand	80-90	42-44	39	UNDEFINE
6.75	22.15	222.56	2.37	1.07	1.20	sand	80-90	42-44	43	UNDEFINE
7.00	22.97	250.42	2.49	0.99	1.24	sand	80-90	44-46	48	UNDEFINE
7.25	23.79	248.76	2.60	1.04	1.28	sand	80-90	42-44	48	UNDEFINE
7.50	24.61	254.18	2.63	1.04	1.30	sand	80-90	42-44	49	UNDEFINE
7.75	25.43	227.58	2.26	0.99	1.32	sand	80-90	42-44	44	UNDEFINE
8.00	26.25	205.56	1.98	0.97	1.34	sand	80-90	42-44	39	UNDEFINE
8.25	27.07	199.98	2.02	1.01	1.36	sand	80-90	42-44	38	UNDEFINE
8.50	27.89	217.36	2.25	1.04	1.38	sand	80-90	42-44	42	UNDEFINE

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 14

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-06-92

SOUNDING NO. : CPT-09 Pg 1 / 1

LOCATION : BLDG. 870

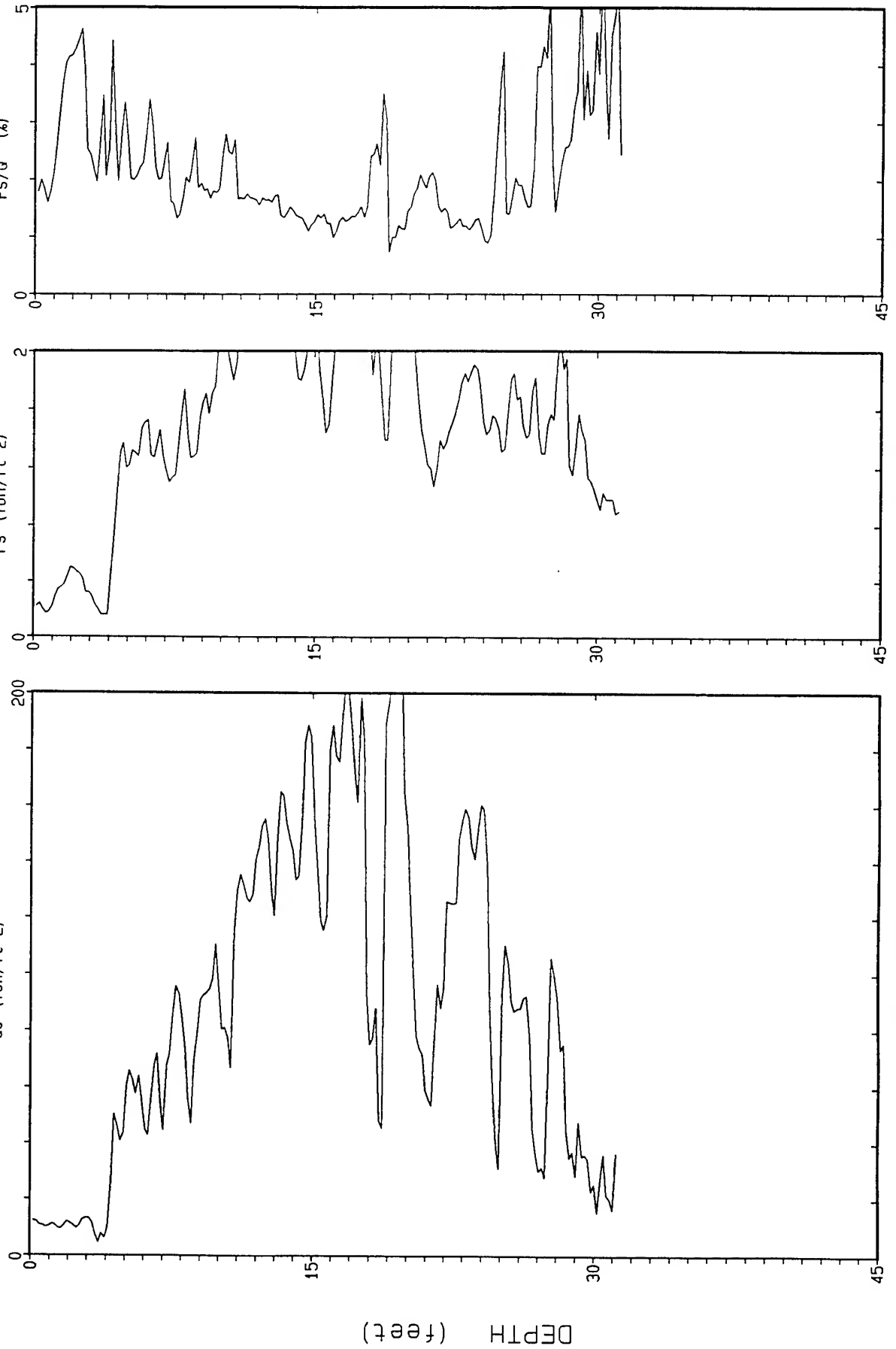
DEPTH TO WATER : 27.06 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 31.17 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-06-92

Location : CPT-09

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 8.25

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	11.14	0.20	1.81	0.02	clayey silt to silty clay	UNDFND	UNDFD	5	.4
0.50	1.64	10.26	0.32	3.10	0.07	silty clay to clay	UNDFND	UNDFD	7	.46
0.75	2.46	10.86	0.47	4.33	0.11	clay	UNDFND	UNDFD	10	.47
1.00	3.28	12.22	0.32	2.59	0.16	clayey silt to silty clay	UNDFND	UNDFD	6	.48
1.25	4.10	7.20	0.22	3.08	0.20	clay	UNDFND	UNDFD	7	.27
1.50	4.92	41.36	1.12	2.71	0.25	sandy silt to clayey silt	UNDFND	UNDFD	16	1.64
1.75	5.74	62.08	1.32	2.12	0.29	silty sand to sandy silt	70-80	44-46	20	UNDEFINED
2.00	6.56	53.48	1.39	2.60	0.34	sandy silt to clayey silt	UNDFND	UNDFD	20	2.12
2.25	7.38	61.92	1.23	1.99	0.38	silty sand to sandy silt	60-70	42-44	20	UNDEFINED
2.50	8.20	86.76	1.45	1.67	0.43	silty sand to sandy silt	70-80	44-46	28	UNDEFINED
2.75	9.02	68.68	1.41	2.05	0.47	silty sand to sandy silt	60-70	42-44	22	UNDEFINED
3.00	9.84	97.98	1.76	1.79	0.52	silty sand to sandy silt	70-80	42-44	31	UNDEFINED
3.25	10.66	80.08	2.06	2.57	0.56	sandy silt to clayey silt	UNDFND	UNDFD	31	3.18
3.50	11.48	127.90	2.17	1.70	0.61	sand to silty sand	80-90	44-46	31	UNDEFINED
3.75	12.30	138.58	2.28	1.64	0.65	sand to silty sand	80-90	44-46	33	UNDEFINED
4.00	13.12	139.88	2.26	1.61	0.70	sand to silty sand	80-90	44-46	33	UNDEFINED
4.25	13.94	155.16	2.21	1.42	0.74	sand to silty sand	80-90	44-46	37	UNDEFINED
4.50	14.76	158.68	1.96	1.24	0.79	sand to silty sand	80-90	44-46	38	UNDEFINED
4.75	15.58	142.98	1.90	1.33	0.83	sand to silty sand	70-80	42-44	34	UNDEFINED
5.00	16.40	168.60	2.00	1.19	0.88	sand to silty sand	80-90	42-44	40	UNDEFINED
5.25	17.22	191.18	2.58	1.35	0.92	sand to silty sand	80-90	44-46	46	UNDEFINED
5.50	18.04	142.54	2.42	1.70	0.97	sand to silty sand	70-80	42-44	34	UNDEFINED
5.75	18.86	89.66	1.70	1.90	1.01	silty sand to sandy silt	60-70	40-42	29	UNDEFINED
6.00	19.69	208.50	2.29	1.10	1.06	sand	80-90	42-44	40	UNDEFINED
6.25	20.51	124.58	2.10	1.68	1.11	sand to silty sand	70-80	40-42	30	UNDEFINED
6.50	21.33	62.78	1.26	2.00	1.15	silty sand to sandy silt	50-60	38-40	20	UNDEFINED
6.75	22.15	96.82	1.35	1.39	1.20	sand to silty sand	60-70	40-42	23	UNDEFINED
7.00	22.97	135.90	1.68	1.23	1.24	sand to silty sand	70-80	40-42	33	UNDEFINED
7.25	23.79	150.52	1.84	1.22	1.29	sand to silty sand	70-80	40-42	36	UNDEFINED
7.50	24.61	121.26	1.50	1.24	1.33	sand to silty sand	60-70	40-42	29	UNDEFINED
7.75	25.43	75.86	1.50	1.97	1.38	silty sand to sandy silt	50-60	38-40	24	UNDEFINED
8.00	26.25	89.08	1.62	1.82	1.42	silty sand to sandy silt	50-60	38-40	28	UNDEFINED
8.25	27.07	56.54	1.54	2.73	1.47	sandy silt to clayey silt	UNDFND	UNDFD	22	2.20
8.50	27.89	66.62	1.57	2.35	1.50	sandy silt to clayey silt	UNDFND	UNDFD	26	2.60
8.75	28.71	64.08	1.66	2.59	1.52	sandy silt to clayey silt	UNDFND	UNDFD	25	2.50
9.00	29.53	36.90	1.37	3.72	1.54	clayey silt to silty clay	UNDFND	UNDFD	18	1.41
9.25	30.35	24.86	1.02	4.09	1.56	silty clay to clay	UNDFND	UNDFD	16	.92
9.50	31.17	26.16	0.94	3.61	1.58	clayey silt to silty clay	UNDFND	UNDFD	13	.97

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Location : BLDG. 870

Page No. 2

DEPTH	Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)	(%)	deg.	N	tsf

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-06-92

SOUNDING NO. : CPT-10 Pg 1 / 1

LOCATION : BLDG. 870

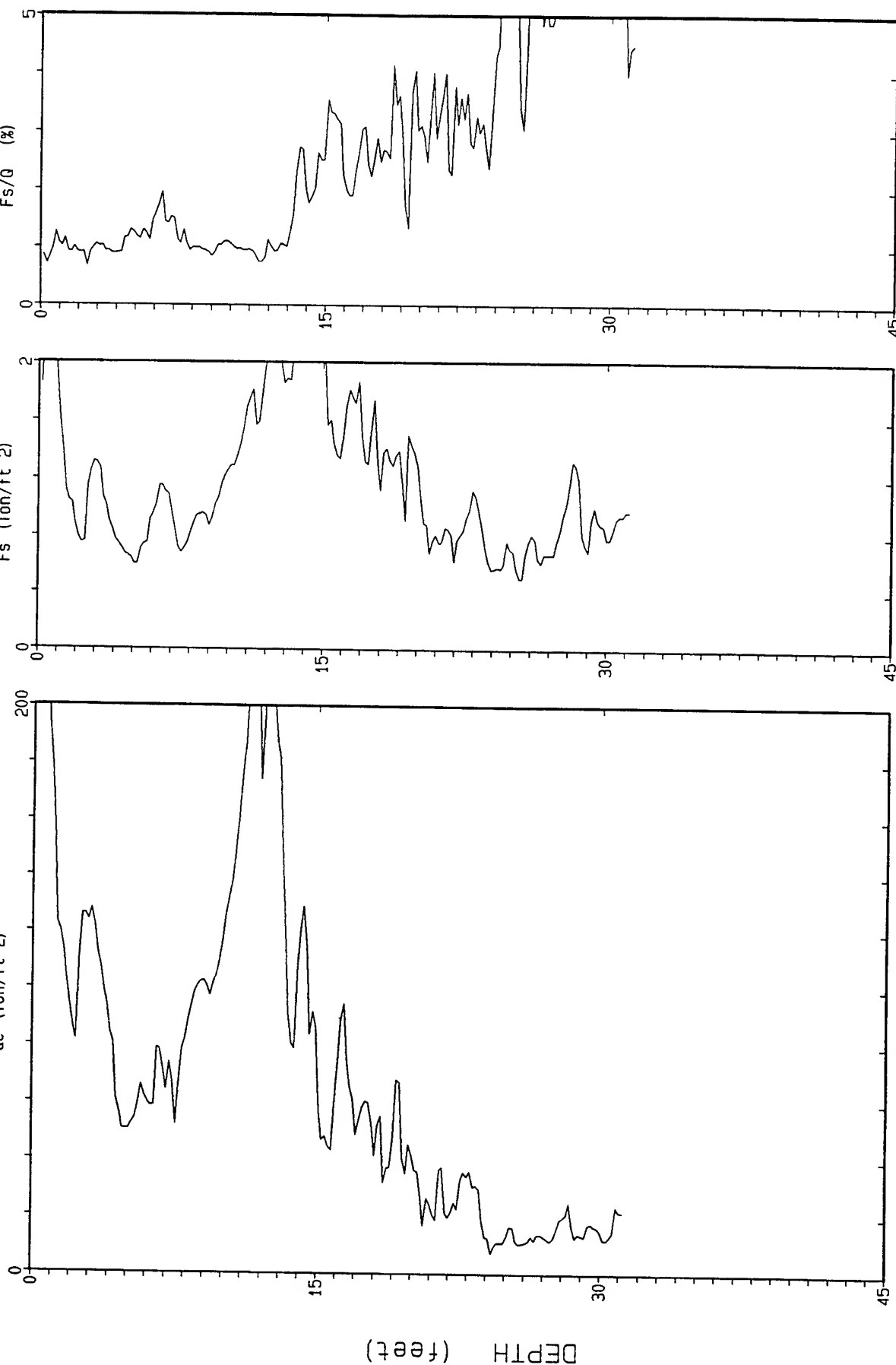
DEPTH TO WATER : 22.14 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 31.17 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-06-92

Location : CPT-10

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 6.75

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	266.48	2.42	0.91	0.02	sand	>90	UNDFD	>50	UNDEFINED
0.50	1.64	138.86	1.42	1.02	0.07	sand to silty sand	>90	>48	33	UNDEFINED
0.75	2.46	95.68	0.84	0.88	0.11	sand to silty sand	>90	>48	23	UNDEFINED
1.00	3.28	125.46	1.26	1.00	0.16	sand to silty sand	>90	>48	30	UNDEFINED
1.25	4.10	99.84	0.92	0.92	0.20	sand to silty sand	80-90	46-48	24	UNDEFINED
1.50	4.92	59.88	0.68	1.14	0.25	silty sand to sandy silt	70-80	44-46	19	UNDEFINED
1.75	5.74	56.40	0.68	1.21	0.29	silty sand to sandy silt	60-70	42-44	18	UNDEFINED
2.00	6.56	63.74	1.04	1.63	0.34	silty sand to sandy silt	60-70	42-44	20	UNDEFINED
2.25	7.38	71.12	0.95	1.33	0.38	silty sand to sandy silt	70-80	42-44	23	UNDEFINED
2.50	8.20	73.44	0.77	1.05	0.43	sand to silty sand	60-70	42-44	18	UNDEFINED
2.75	9.02	99.72	0.93	0.93	0.47	sand to silty sand	70-80	44-46	24	UNDEFINED
3.00	9.84	103.04	1.08	1.04	0.52	sand to silty sand	70-80	44-46	25	UNDEFINED
3.25	10.66	132.44	1.33	1.00	0.56	sand to silty sand	80-90	44-46	32	UNDEFINED
3.50	11.48	187.26	1.68	0.90	0.61	sand	>90	44-46	36	UNDEFINED
3.75	12.30	206.02	1.92	0.93	0.65	sand	>90	44-46	39	UNDEFINED
4.00	13.12	191.76	2.03	1.06	0.70	sand	>90	44-46	37	UNDEFINED
4.25	13.94	96.02	2.11	2.20	0.74	silty sand to sandy silt	60-70	42-44	31	UNDEFINED
4.50	14.76	108.08	2.29	2.12	0.79	silty sand to sandy silt	70-80	42-44	35	UNDEFINED
4.75	15.58	56.64	1.76	3.11	0.83	sandy silt to clayey silt	UNDFND	UNDFD	22	2.93
5.00	16.40	72.04	1.54	2.14	0.88	silty sand to sandy silt	50-60	40-42	23	UNDEFINED
5.25	17.22	60.92	1.64	2.69	0.92	sandy silt to clayey silt	UNDFND	UNDFD	23	3.1
5.50	18.04	54.48	1.40	2.58	0.97	sandy silt to clayey silt	UNDFND	UNDFD	21	2.81
5.75	18.86	42.66	1.35	3.17	1.01	clayey silt to silty clay	UNDFND	UNDFD	20	2.1
6.00	19.69	51.94	1.28	2.47	1.06	sandy silt to clayey silt	UNDFND	UNDFD	20	2.6
6.25	20.51	37.08	1.10	2.97	1.11	sandy silt to clayey silt	UNDFND	UNDFD	14	1.89
6.50	21.33	21.52	0.75	3.50	1.15	clayey silt to silty clay	UNDFND	UNDFD	10	1.03
6.75	22.15	27.24	0.78	2.87	1.20	clayey silt to silty clay	UNDFND	UNDFD	13	1.1
7.00	22.97	30.10	0.94	3.11	1.23	clayey silt to silty clay	UNDFND	UNDFD	14	1.51
7.25	23.79	29.28	0.85	2.90	1.25	clayey silt to silty clay	UNDFND	UNDFD	14	1.47
7.50	24.61	10.76	0.58	5.35	1.27	clay	UNDFND	UNDFD	10	.4
7.75	25.43	13.64	0.65	4.74	1.29	clay	UNDFND	UNDFD	13	.6
8.00	26.25	11.02	0.70	6.39	1.31	clay	UNDFND	UNDFD	11	.50
8.25	27.07	13.16	0.65	4.95	1.33	clay	UNDFND	UNDFD	13	.6
8.50	27.89	14.24	0.85	5.94	1.34	clay	UNDFND	UNDFD	14	.6
8.75	28.71	19.02	1.15	6.07	1.36	clay	UNDFND	UNDFD	18	.91
9.00	29.53	15.10	0.85	5.63	1.38	clay	UNDFND	UNDFD	14	.71
9.25	30.35	14.48	0.83	5.73	1.40	clay	UNDFND	UNDFD	14	.6
9.50	31.17	18.96	0.95	5.00	1.42	clay	UNDFND	UNDFD	18	.90

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH	Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)		(%)	deg.	N	tsf

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-07-92

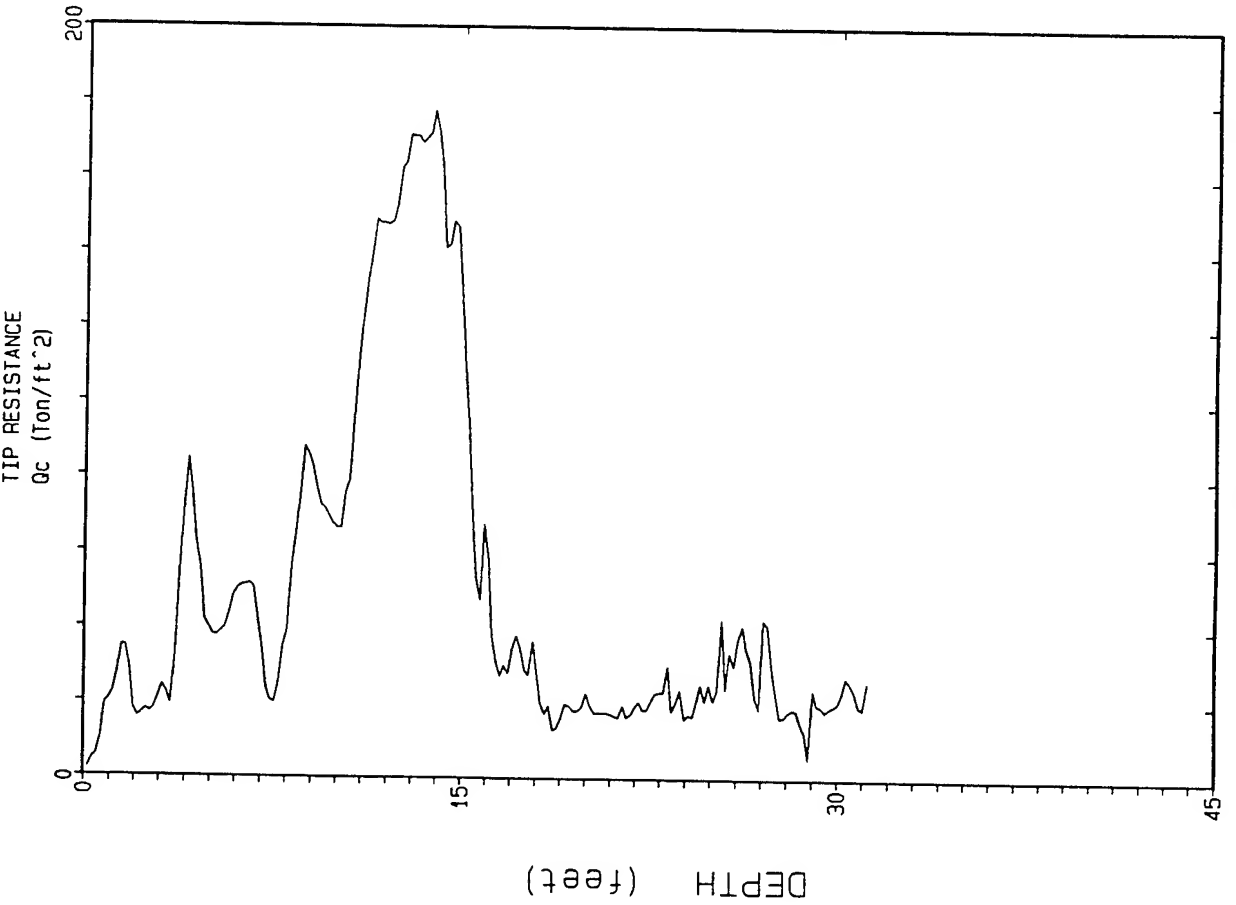
SOUNDING NO. : CPT-11 Pg 1 / 1

LOCATION : BLDG. 870

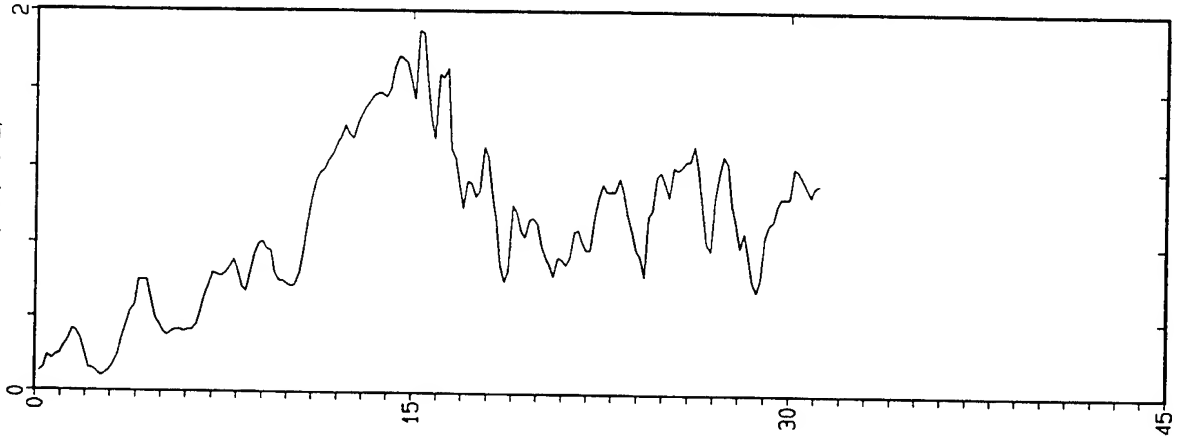
DEPTH TO WATER : 28.37 FT BLS

TERRA JOB NO. : 92-1016

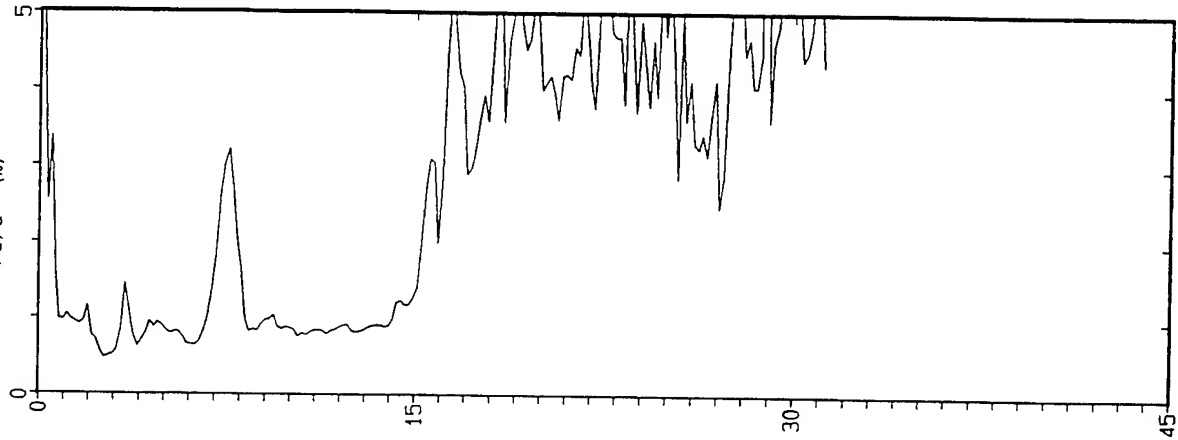
TIP RESISTANCE
 Q_c (Ton/ft²)



LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 31.17 ft

Contractor : TERRA TECH SW

Test Date : 08-07-92

Location : CPT-11

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 8.65

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	8.40	0.15	1.83	0.02	clayey silt to silty clay	UNDFND	UNDFD	4	.4
0.50	1.64	27.98	0.27	0.97	0.07	silty sand to sandy silt	60-70	46-48	9	UNDEFINE
0.75	2.46	19.36	0.17	0.86	0.11	sandy silt to clayey silt	UNDFND	UNDFD	7	1.0
1.00	3.28	20.54	0.12	0.59	0.16	silty sand to sandy silt	40-50	42-44	7	UNDEFINE
1.25	4.10	52.70	0.43	0.81	0.20	sand to silty sand	70-80	44-46	13	UNDEFINE
1.50	4.92	54.76	0.49	0.89	0.25	sand to silty sand	60-70	44-46	13	UNDEFINE
1.75	5.74	39.52	0.32	0.81	0.29	silty sand to sandy silt	50-60	42-44	13	UNDEFINE
2.00	6.56	50.40	0.35	0.70	0.34	sand to silty sand	60-70	42-44	12	UNDEFINE
2.25	7.38	34.14	0.60	1.75	0.38	sandy silt to clayey silt	UNDFND	UNDFD	13	1.7
2.50	8.20	34.94	0.65	1.85	0.43	sandy silt to clayey silt	UNDFND	UNDFD	13	1.8
2.75	9.02	79.38	0.71	0.89	0.47	sand to silty sand	70-80	42-44	19	UNDEFINE
3.00	9.84	71.70	0.67	0.94	0.52	sand to silty sand	60-70	42-44	17	UNDEFINE
3.25	10.66	76.60	0.62	0.81	0.56	sand to silty sand	60-70	42-44	18	UNDEFINE
3.50	11.48	131.06	1.09	0.83	0.61	sand	80-90	44-46	25	UNDEFINE
3.75	12.30	148.68	1.32	0.89	0.65	sand	80-90	44-46	28	UNDEFINE
4.00	13.12	168.00	1.43	0.85	0.70	sand	80-90	44-46	32	UNDEFINE
4.25	13.94	172.08	1.57	0.91	0.74	sand	80-90	44-46	33	UNDEFINE
4.50	14.76	147.96	1.72	1.16	0.79	sand to silty sand	80-90	42-44	35	UNDEFINE
4.75	15.58	91.52	1.73	1.89	0.83	silty sand to sandy silt	60-70	40-42	29	UNDEFINE
5.00	16.40	48.22	1.57	3.26	0.88	sandy silt to clayey silt	UNDFND	UNDFD	18	2.49
5.25	17.22	31.30	1.16	3.71	0.92	clayey silt to silty clay	UNDFND	UNDFD	15	1.55
5.50	18.04	31.16	1.16	3.74	0.97	clayey silt to silty clay	UNDFND	UNDFD	15	1.58
5.75	18.86	16.52	0.79	4.78	1.01	clay	UNDFND	UNDFD	16	.81
6.00	19.69	18.26	0.92	5.06	1.06	clay	UNDFND	UNDFD	17	.90
6.25	20.51	19.18	0.81	4.24	1.11	silty clay to clay	UNDFND	UNDFD	12	.95
6.50	21.33	16.90	0.70	4.14	1.15	clay	UNDFND	UNDFD	16	.82
6.75	22.15	18.44	0.82	4.45	1.20	clay	UNDFND	UNDFD	18	.90
7.00	22.97	20.58	1.06	5.13	1.24	clay	UNDFND	UNDFD	20	1.01
7.25	23.79	22.94	1.03	4.48	1.29	clay	UNDFND	UNDFD	22	1.13
7.50	24.61	18.92	0.81	4.30	1.33	clay	UNDFND	UNDFD	18	.92
7.75	25.43	26.46	1.14	4.32	1.38	silty clay to clay	UNDFND	UNDFD	17	1.32
8.00	26.25	33.08	1.24	3.75	1.42	clayey silt to silty clay	UNDFND	UNDFD	16	1.66
8.25	27.07	29.82	0.96	3.22	1.47	clayey silt to silty clay	UNDFND	UNDFD	14	1.49
8.50	27.89	25.38	1.12	4.42	1.51	silty clay to clay	UNDFND	UNDFD	16	1.25
8.75	28.71	16.40	0.71	4.34	1.56	clay	UNDFND	UNDFD	16	.78
9.00	29.53	17.24	0.86	5.01	1.58	clay	UNDFND	UNDFD	17	.82
9.25	30.35	21.72	1.11	5.11	1.60	clay	UNDFND	UNDFD	21	1.05
9.50	31.17	22.58	1.11	4.92	1.62	clay	UNDFND	UNDFD	22	1.09

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH	Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)	(%)	deg.	N	tsf

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-07-92

SOUNDING NO. : CPT-12A Pg 1 / 1

LOCATION : BLDG. 870

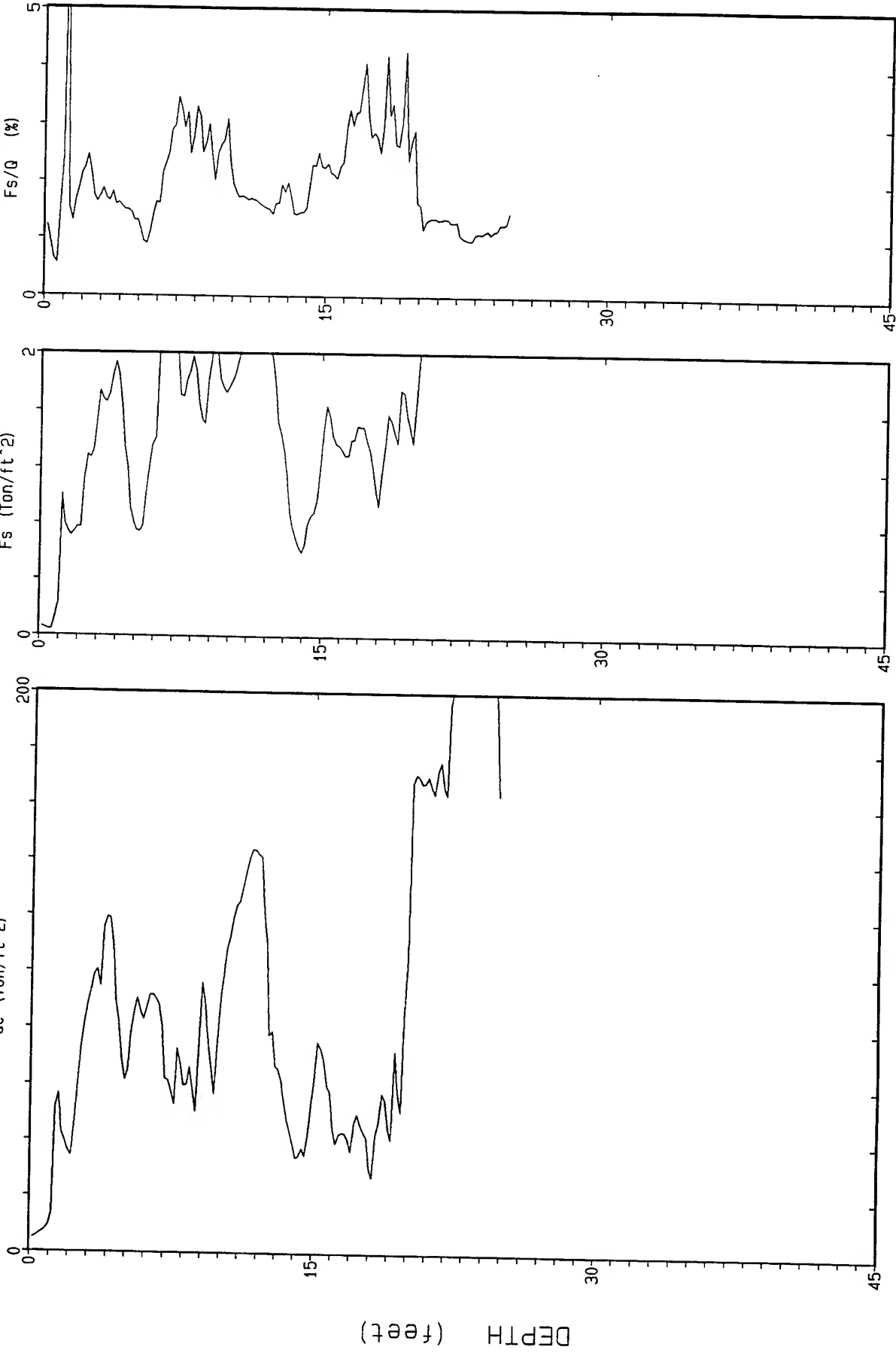
DEPTH TO WATER : 32.31 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 24.77 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date :A 08-07-92

Location : CPT-12

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 9.85

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	6.32	0.06	0.98	0.02	sensitive fine grained	UNDFND	UNDFD	3	.33
0.50	1.64	34.80	0.70	2.01	0.07	sandy silt to clayey silt	UNDFND	UNDFD	13	1.82
0.75	2.46	43.02	0.94	2.18	0.11	sandy silt to clayey silt	UNDFND	UNDFD	16	2.1
1.00	3.28	86.72	1.51	1.74	0.16	silty sand to sandy silt	80-90	>48	28	UNDEFINED
1.25	4.10	109.82	1.80	1.64	0.20	silty sand to sandy silt	>90	>48	35	UNDEFINED
1.50	4.92	82.20	1.18	1.44	0.25	silty sand to sandy silt	80-90	46-48	26	UNDEFINED
1.75	5.74	80.98	0.90	1.11	0.29	sand to silty sand	70-80	44-46	19	UNDEFINED
2.00	6.56	88.78	1.83	2.06	0.34	silty sand to sandy silt	70-80	44-46	28	UNDEFINED
2.25	7.38	70.04	2.17	3.10	0.38	sandy silt to clayey silt	UNDFND	UNDFD	27	3.6
2.50	8.20	62.50	1.85	2.96	0.43	sandy silt to clayey silt	UNDFND	UNDFD	24	3.1
2.75	9.02	68.98	1.70	2.46	0.47	sandy silt to clayey silt	UNDFND	UNDFD	26	3.60
3.00	9.84	72.32	1.91	2.64	0.52	sandy silt to clayey silt	UNDFND	UNDFD	28	3.77
3.25	10.66	105.86	1.89	1.79	0.56	silty sand to sandy silt	70-80	42-44	34	UNDEFINED
3.50	11.48	131.26	2.19	1.67	0.61	sand to silty sand	80-90	44-46	31	UNDEFINED
3.75	12.30	138.66	2.13	1.53	0.65	sand to silty sand	80-90	44-46	33	UNDEFINED
4.00	13.12	79.88	1.45	1.82	0.70	silty sand to sandy silt	60-70	40-42	26	UNDEFINED
4.25	13.94	49.32	0.72	1.46	0.74	silty sand to sandy silt	50-60	38-40	16	UNDEFINED
4.50	14.76	36.78	0.83	2.26	0.79	sandy silt to clayey silt	UNDFND	UNDFD	14	1.89
4.75	15.58	66.86	1.46	2.19	0.83	silty sand to sandy silt	50-60	40-42	21	UNDEFINED
5.00	16.40	48.84	1.33	2.72	0.88	sandy silt to clayey silt	UNDFND	UNDFD	19	2.5
5.25	17.22	42.08	1.46	3.46	0.92	clayey silt to silty clay	UNDFND	UNDFD	20	2.15
5.50	18.04	42.38	1.19	2.80	0.97	sandy silt to clayey silt	UNDFND	UNDFD	16	2.17
5.75	18.86	45.80	1.42	3.09	1.01	sandy silt to clayey silt	UNDFND	UNDFD	18	2.3
6.00	19.69	53.44	1.58	2.96	1.06	sandy silt to clayey silt	UNDFND	UNDFD	20	2.7
6.25	20.51	140.06	1.93	1.38	1.11	sand to silty sand	70-80	42-44	34	UNDEFINED
6.50	21.33	167.72	2.29	1.36	1.15	sand to silty sand	70-80	42-44	40	UNDEFINED
6.75	22.15	175.14	2.21	1.26	1.20	sand to silty sand	80-90	42-44	42	UNDEFINED
7.00	22.97	209.22	2.13	1.02	1.24	sand	80-90	42-44	40	UNDEFINED
7.25	23.79	258.34	2.89	1.12	1.29	sand	>90	44-46	49	UNDEFINED
7.50	24.61	217.10	2.65	1.22	1.33	sand	80-90	42-44	42	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-07-92

DEPTH TO WATER : 32.31 FT BLS

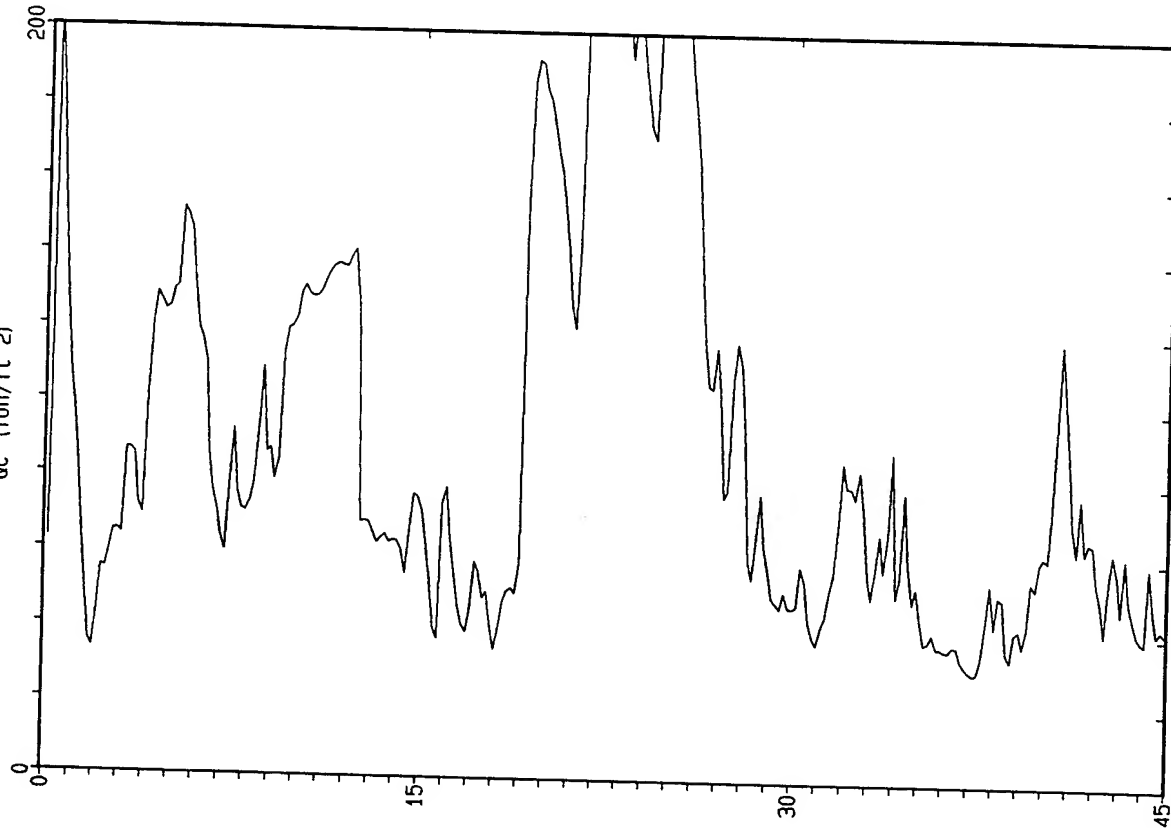
SOUNDING NO. : CPT-12B Pg 1 / 2

TERRA JOB NO. : 92-1016

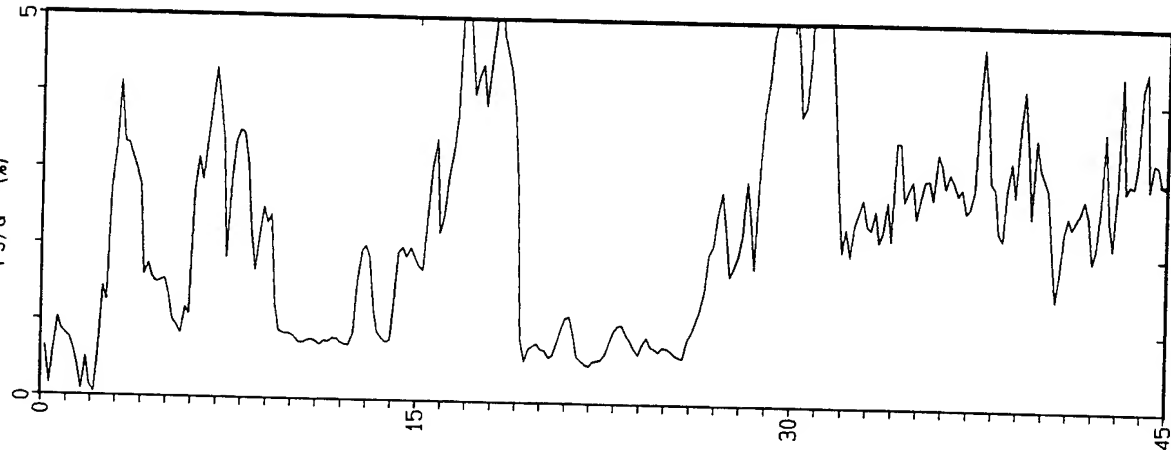
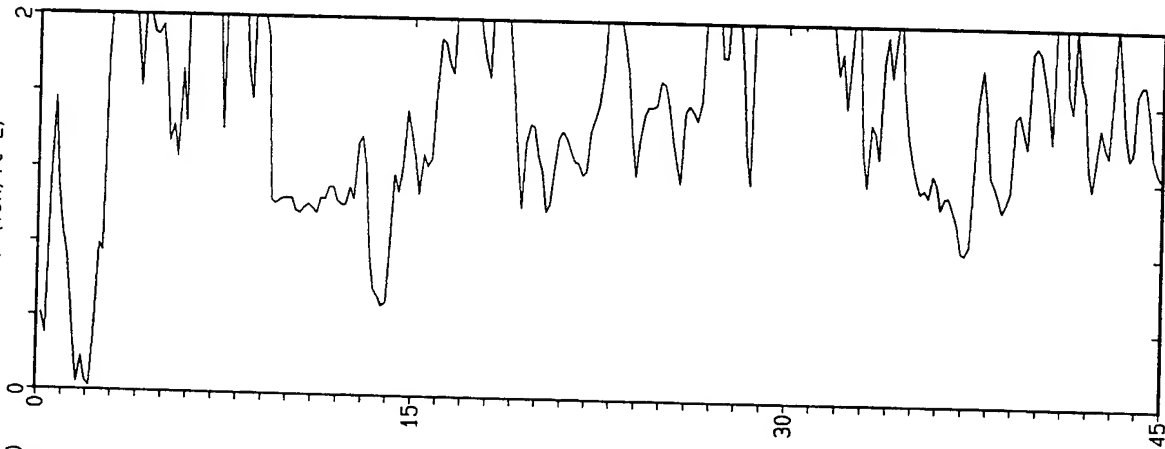
TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m



Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-07-92

SOUNDING NO. : CPT-12B Pg 2 / 2

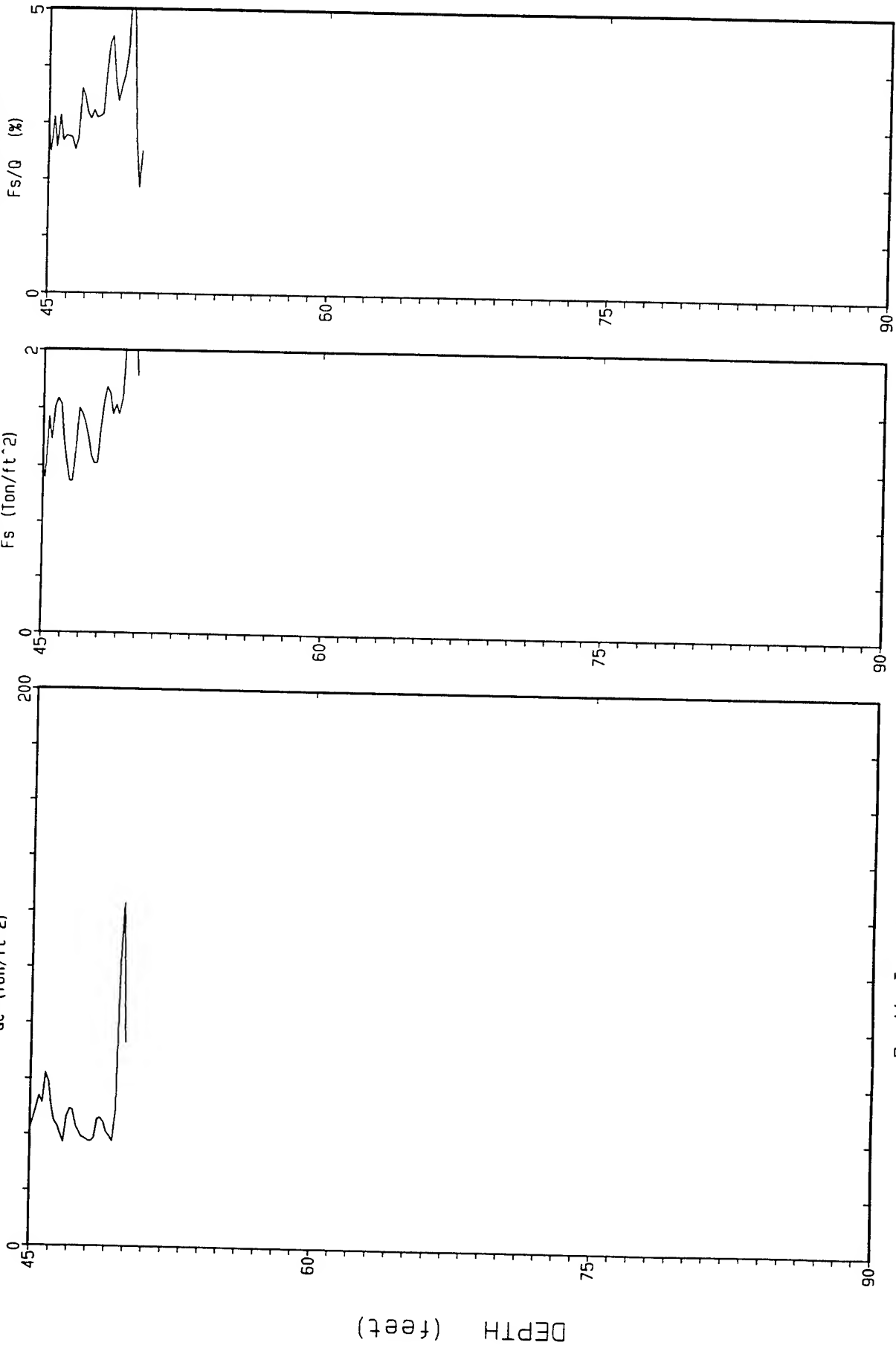
DEPTH TO WATER : 32.31 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date :B 08-07-92

Location : CPT-12

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 9.85

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	146.90	0.90	0.61	0.02	sand	>90	>48	28	UNDEFINED
0.50	1.64	81.04	0.49	0.60	0.07	sand to silty sand	>90	>48	19	UNDEFINED
0.75	2.46	44.46	0.27	0.60	0.11	sand to silty sand	70-80	46-48	11	UNDEFINED
1.00	3.28	67.94	2.03	2.99	0.16	sandy silt to clayey silt	UNDFND	UNDFD	26	3.56
1.25	4.10	83.00	2.25	2.71	0.20	sandy silt to clayey silt	UNDFND	UNDFD	32	4.35
1.50	4.92	125.46	1.98	1.58	0.25	sand to silty sand	>90	46-48	30	UNDEFINED
1.75	5.74	141.74	1.50	1.06	0.29	sand to silty sand	>90	46-48	34	UNDEFINED
2.00	6.56	113.04	2.88	2.55	0.34	silty sand to sandy silt	80-90	46-48	36	UNDEFINED
2.25	7.38	69.46	2.37	3.41	0.38	sandy silt to clayey silt	UNDFND	UNDFD	27	3.63
2.50	8.20	76.54	2.47	3.22	0.43	sandy silt to clayey silt	UNDFND	UNDFD	29	4.00
2.75	9.02	90.96	1.96	2.15	0.47	silty sand to sandy silt	70-80	42-44	29	UNDEFINED
3.00	9.84	103.46	1.21	1.17	0.52	sand to silty sand	70-80	44-46	25	UNDEFINED
3.25	10.66	128.30	1.01	0.79	0.56	sand	80-90	44-46	25	UNDEFINED
3.50	11.48	133.04	1.02	0.77	0.61	sand	80-90	44-46	25	UNDEFINED
3.75	12.30	138.40	1.06	0.77	0.65	sand	80-90	44-46	27	UNDEFINED
4.00	13.12	79.18	1.22	1.54	0.70	silty sand to sandy silt	60-70	40-42	25	UNDEFINED
4.25	13.94	63.40	0.57	0.89	0.74	sand to silty sand	50-60	40-42	15	UNDEFINED
4.50	14.76	63.80	1.17	1.83	0.79	silty sand to sandy silt	50-60	40-42	20	UNDEFINED
4.75	15.58	60.36	1.25	2.08	0.83	silty sand to sandy silt	50-60	38-40	19	UNDEFINED
5.00	16.40	61.02	1.69	2.76	0.88	sandy silt to clayey silt	UNDFND	UNDFD	23	3.16
5.25	17.22	45.68	2.10	4.59	0.92	silty clay to clay	UNDFND	UNDFD	29	2.35
5.50	18.04	45.58	1.98	4.34	0.97	silty clay to clay	UNDFND	UNDFD	29	2.34
5.75	18.86	47.42	2.17	4.58	1.01	silty clay to clay	UNDFND	UNDFD	30	2.44
6.00	19.69	156.64	1.35	0.86	1.06	sand	70-80	42-44	30	UNDEFINED
6.25	20.51	174.98	1.20	0.69	1.11	sand	80-90	42-44	34	UNDEFINED
6.50	21.33	137.74	1.35	0.98	1.15	sand to silty sand	70-80	40-42	33	UNDEFINED
6.75	22.15	232.42	1.28	0.55	1.20	sand	80-90	42-44	45	UNDEFINED
7.00	22.97	256.84	1.82	0.71	1.24	sand	>90	44-46	49	UNDEFINED
7.25	23.79	201.12	1.84	0.92	1.29	sand	80-90	42-44	39	UNDEFINED
7.50	24.61	189.10	1.45	0.76	1.33	sand	80-90	42-44	36	UNDEFINED
7.75	25.43	220.98	1.58	0.72	1.38	sand	80-90	42-44	42	UNDEFINED
8.00	26.25	173.96	1.42	0.81	1.42	sand	70-80	40-42	33	UNDEFINED
8.25	27.07	109.86	2.04	1.86	1.47	silty sand to sandy silt	60-70	38-40	35	UNDEFINED
8.50	27.89	98.14	2.02	2.06	1.51	silty sand to sandy silt	60-70	38-40	31	UNDEFINED
8.75	28.71	69.68	1.74	2.49	1.56	sandy silt to clayey silt	UNDFND	UNDFD	27	3.58
9.00	29.53	52.62	2.49	4.73	1.60	silty clay to clay	UNDFND	UNDFD	34	2.68
9.25	30.35	49.86	2.55	5.12	1.65	clay	UNDFND	UNDFD	48	2.53
9.50	31.17	42.96	2.48	5.77	1.69	clay	UNDFND	UNDFD	41	2.17

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	61.40	2.17	3.53	1.74	clayey silt to silty clay	UNDFND	UNDFD	29	3
10.00	32.81	78.26	1.88	2.41	1.78	silty sand to sandy silt	50-60	36-38	25	UNDEFI
10.25	33.63	57.26	1.35	2.36	1.80	sandy silt to clayey silt	UNDFND	UNDFD	22	2.9
10.50	34.45	67.64	1.91	2.82	1.82	sandy silt to clayey silt	UNDFND	UNDFD	26	3
10.75	35.27	48.12	1.35	2.81	1.84	sandy silt to clayey silt	UNDFND	UNDFD	18	2
11.00	36.09	37.64	1.14	3.04	1.86	clayey silt to silty clay	UNDFND	UNDFD	18	1.8
11.25	36.91	35.06	1.01	2.88	1.88	sandy silt to clayey silt	UNDFND	UNDFD	13	1.7
11.50	37.73	33.74	1.26	3.73	1.90	clayey silt to silty clay	UNDFND	UNDFD	16	1
11.75	38.55	46.48	1.23	2.65	1.92	sandy silt to clayey silt	UNDFND	UNDFD	18	2.5
12.00	39.37	39.16	1.36	3.47	1.94	clayey silt to silty clay	UNDFND	UNDFD	19	1.94
12.25	40.19	57.78	1.76	3.05	1.95	sandy silt to clayey silt	UNDFND	UNDFD	22	2
12.50	41.01	96.22	1.96	2.04	1.97	silty sand to sandy silt	50-60	36-38	31	UNDEFIN
12.75	41.83	67.38	1.73	2.57	1.99	sandy silt to clayey silt	UNDFND	UNDFD	26	3.42
13.00	42.65	52.88	1.33	2.52	2.01	sandy silt to clayey silt	UNDFND	UNDFD	20	2.6
13.25	43.47	55.50	1.66	3.00	2.03	sandy silt to clayey silt	UNDFND	UNDFD	21	2
13.50	44.29	44.66	1.56	3.49	2.05	clayey silt to silty clay	UNDFND	UNDFD	21	2.22
13.75	45.11	43.52	1.30	2.99	2.07	sandy silt to clayey silt	UNDFND	UNDFD	17	2.16
14.00	45.93	55.10	1.57	2.84	2.09	sandy silt to clayey silt	UNDFND	UNDFD	21	2
14.25	46.75	42.98	1.23	2.85	2.11	sandy silt to clayey silt	UNDFND	UNDFD	16	2
14.50	47.57	45.60	1.46	3.21	2.13	sandy silt to clayey silt	UNDFND	UNDFD	17	2.26
14.75	48.39	38.32	1.46	3.80	2.15	clayey silt to silty clay	UNDFND	UNDFD	18	1
15.00	49.21	43.18	1.62	3.76	2.17	clayey silt to silty clay	UNDFND	UNDFD	21	2
15.25	50.03	76.72	2.26	2.95	2.19	sandy silt to clayey silt	UNDFND	UNDFD	29	3.89

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 19

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-07-92

DEPTH TO WATER : 28.37 FT BLS

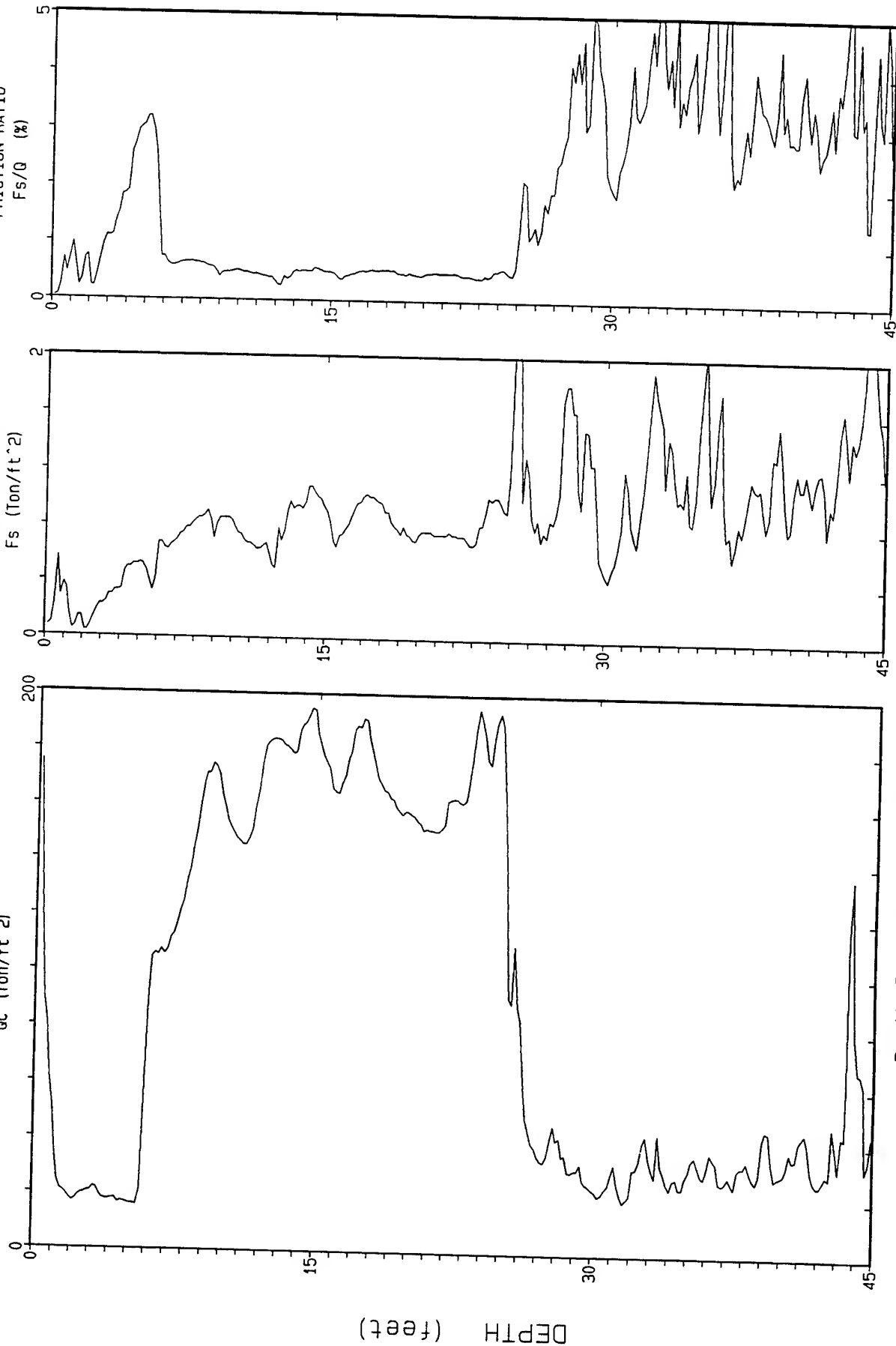
SOUNDING NO. : CPT-13 Pg 1 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-07-92

DEPTH TO WATER : 28.37 FT BLS

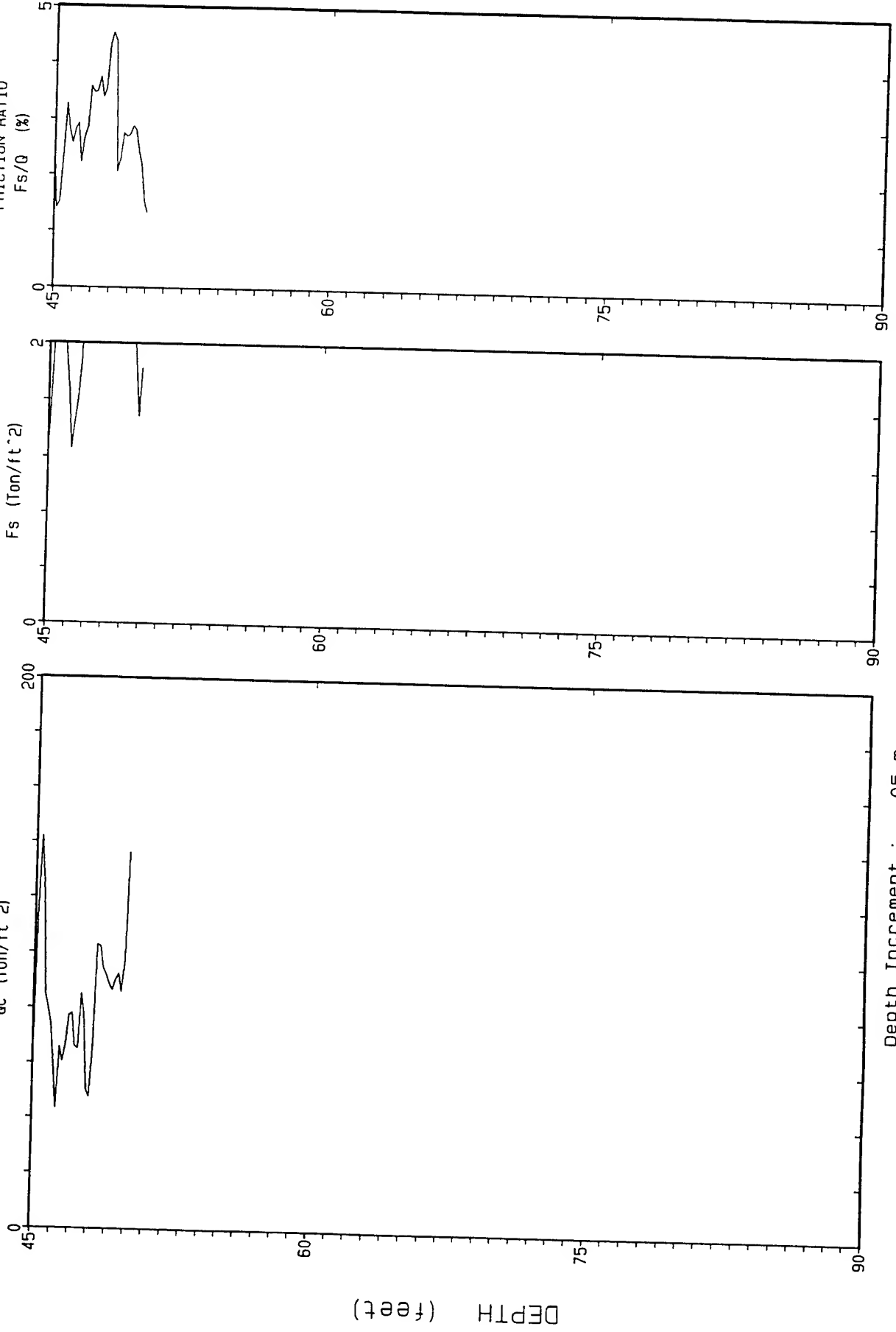
SOUNDING NO. : CPT-13 Pg 2 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-07-92

Location : CPT-13

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 8.65

Tot. Unit Wt. (avg) : 105 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	105.92	0.25	0.24	0.02	sand	>90	>48	20	UNDEFINE
0.50	1.64	30.40	0.20	0.66	0.06	silty sand to sandy silt	70-80	46-48	10	UNDEFINE
0.75	2.46	18.18	0.09	0.50	0.11	sandy silt to clayey silt	UNDFND	UNDFD	7	.7
1.00	3.28	20.66	0.21	1.01	0.15	sandy silt to clayey silt	UNDFND	UNDFD	8	.8
1.25	4.10	19.02	0.32	1.68	0.19	sandy silt to clayey silt	UNDFND	UNDFD	7	.7
1.50	4.92	17.46	0.50	2.88	0.24	clayey silt to silty clay	UNDFND	UNDFD	8	.7
1.75	5.74	17.18	0.45	2.64	0.28	clayey silt to silty clay	UNDFND	UNDFD	8	.7
2.00	6.56	92.10	0.61	0.66	0.32	sand to silty sand	80-90	44-46	22	UNDEFINE
2.25	7.38	109.20	0.71	0.65	0.37	sand	80-90	44-46	21	UNDEFINE
2.50	8.20	126.30	0.82	0.65	0.41	sand	80-90	44-46	24	UNDEFINE
2.75	9.02	158.54	0.84	0.53	0.45	sand	>90	46-48	30	UNDEFINE
3.00	9.84	170.88	0.85	0.50	0.50	sand	>90	46-48	33	UNDEFINE
3.25	10.66	152.74	0.76	0.50	0.54	sand	80-90	44-46	29	UNDEFINE
3.50	11.48	147.42	0.66	0.45	0.58	sand	80-90	44-46	28	UNDEFINE
3.75	12.30	172.80	0.59	0.34	0.62	sand	80-90	44-46	33	UNDEFINE
4.00	13.12	183.34	0.83	0.45	0.67	sand	80-90	44-46	35	UNDEFINE
4.25	13.94	181.26	0.95	0.52	0.71	sand	80-90	44-46	35	UNDEFINE
4.50	14.76	192.12	1.05	0.55	0.75	sand	80-90	44-46	37	UNDEFINE
4.75	15.58	178.86	0.81	0.45	0.80	sand	80-90	44-46	34	UNDEFINE
5.00	16.40	167.04	0.80	0.48	0.84	sand	80-90	44-46	32	UNDEFINE
5.25	17.22	184.22	0.99	0.54	0.88	sand	80-90	44-46	35	UNDEFINE
5.50	18.04	184.12	1.00	0.54	0.93	sand	80-90	44-46	35	UNDEFINE
5.75	18.86	166.60	0.85	0.51	0.97	sand	80-90	42-44	32	UNDEFINE
6.00	19.69	159.24	0.75	0.47	1.01	sand	70-80	42-44	31	UNDEFINE
6.25	20.51	156.08	0.75	0.48	1.05	sand	70-80	42-44	30	UNDEFINE
6.50	21.33	151.54	0.75	0.50	1.10	sand	70-80	42-44	29	UNDEFINE
6.75	22.15	156.42	0.75	0.48	1.14	sand	70-80	42-44	30	UNDEFINE
7.00	22.97	162.44	0.71	0.44	1.18	sand	70-80	42-44	31	UNDEFINE
7.25	23.79	184.30	0.85	0.46	1.23	sand	80-90	42-44	35	UNDEFINE
7.50	24.61	182.80	0.99	0.54	1.27	sand	80-90	42-44	35	UNDEFINE
7.75	25.43	155.18	1.80	1.16	1.31	sand to silty sand	70-80	40-42	37	UNDEFINE
8.00	26.25	87.08	1.03	1.19	1.36	sand to silty sand	50-60	38-40	21	UNDEFINE
8.25	27.07	41.42	0.79	1.90	1.40	sandy silt to clayey silt	UNDFND	UNDFD	16	1.66
8.50	27.89	37.86	1.26	3.33	1.44	clayey silt to silty clay	UNDFND	UNDFD	18	1.51
8.75	28.71	36.82	1.42	3.86	1.49	clayey silt to silty clay	UNDFND	UNDFD	18	1.47
9.00	29.53	30.02	1.29	4.30	1.51	silty clay to clay	UNDFND	UNDFD	19	1.18
9.25	30.35	23.76	0.50	2.11	1.52	sandy silt to clayey silt	UNDFND	UNDFD	9	.92
9.50	31.17	26.58	0.87	3.27	1.54	clayey silt to silty clay	UNDFND	UNDFD	13	1.04

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	21.92	0.84	3.83	1.56	silty clay to clay	UNDFND	UNDFD	14	
10.00	32.81	35.98	1.65	4.59	1.58	silty clay to clay	UNDFND	UNDFD	23	
10.25	33.63	34.32	1.33	3.88	1.59	clayey silt to silty clay	UNDFND	UNDFD	16	1.3
10.50	34.45	27.08	1.02	3.75	1.61	clayey silt to silty clay	UNDFND	UNDFD	13	1.6
10.75	35.27	28.48	1.45	5.11	1.63	clay	UNDFND	UNDFD	27	1.6
11.00	36.09	31.48	1.38	4.38	1.64	silty clay to clay	UNDFND	UNDFD	20	1.2
11.25	36.91	31.84	0.76	2.39	1.66	sandy silt to clayey silt	UNDFND	UNDFD	12	1.2
11.50	37.73	27.68	0.93	3.37	1.68	clayey silt to silty clay	UNDFND	UNDFD	13	1.2
11.75	38.55	31.56	1.01	3.20	1.70	clayey silt to silty clay	UNDFND	UNDFD	15	1.2
12.00	39.37	37.82	1.28	3.37	1.71	clayey silt to silty clay	UNDFND	UNDFD	18	1.4
12.25	40.19	30.14	0.98	3.26	1.73	clayey silt to silty clay	UNDFND	UNDFD	14	1.4
12.50	41.01	36.40	1.11	3.04	1.75	clayey silt to silty clay	UNDFND	UNDFD	17	1.4
12.75	41.83	37.46	1.09	2.90	1.77	sandy silt to clayey silt	UNDFND	UNDFD	14	1.47
13.00	42.65	27.78	1.25	4.49	1.78	silty clay to clay	UNDFND	UNDFD	18	1.0
13.25	43.47	40.92	1.39	3.40	1.80	clayey silt to silty clay	UNDFND	UNDFD	20	1.0
13.50	44.29	93.18	2.20	2.36	1.82	silty sand to sandy silt	50-60	36-38	30	UNDEFINED
13.75	45.11	56.78	1.54	2.71	1.84	sandy silt to clayey silt	UNDFND	UNDFD	22	2.26
14.00	45.93	101.40	2.39	2.36	1.85	silty sand to sandy silt	50-60	38-40	32	UNDEFINED
14.25	46.75	59.10	1.58	2.68	1.87	sandy silt to clayey silt	UNDFND	UNDFD	23	2.2
14.50	47.57	74.36	2.63	3.54	1.89	sandy silt to clayey silt	UNDFND	UNDFD	28	2.99
14.75	48.39	68.82	2.42	3.51	1.91	sandy silt to clayey silt	UNDFND	UNDFD	26	2.1
15.00	49.21	92.96	2.47	2.65	1.92	sandy silt to clayey silt	UNDFND	UNDFD	36	3.1
15.25	50.03	100.58	2.00	1.98	1.94	silty sand to sandy silt	50-60	36-38	32	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-07-92

DEPTH TO WATER : 25.42 FT BLS

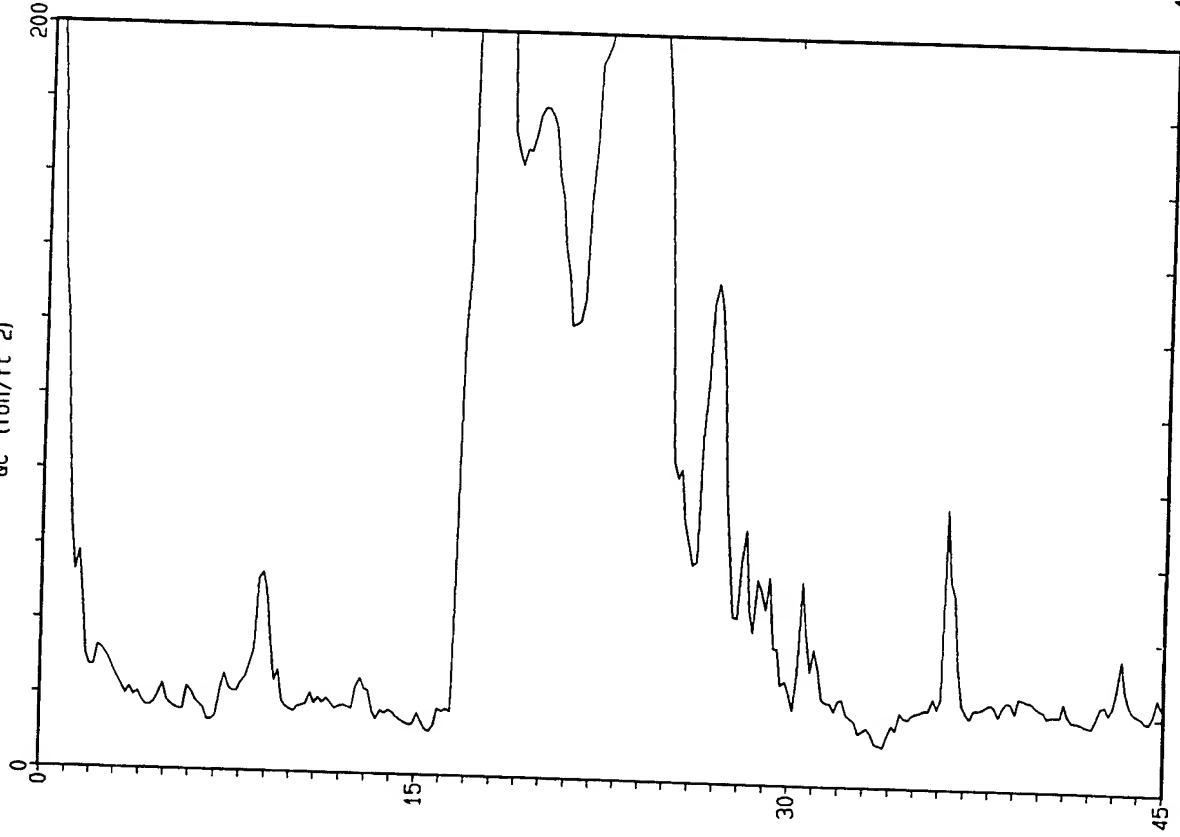
SOUNDING NO. : CPT-14 Pg 1 / 2

TERRA JOB NO. : 92-1016

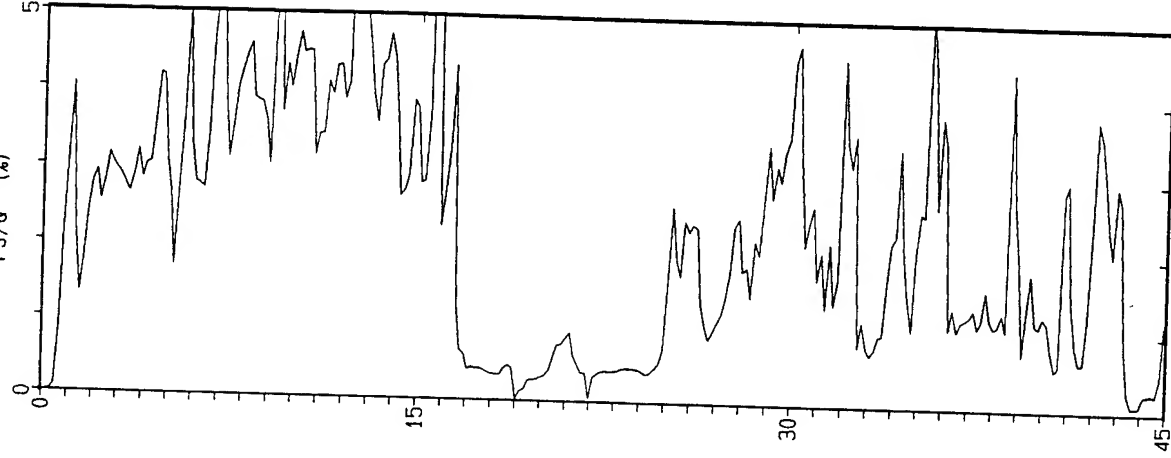
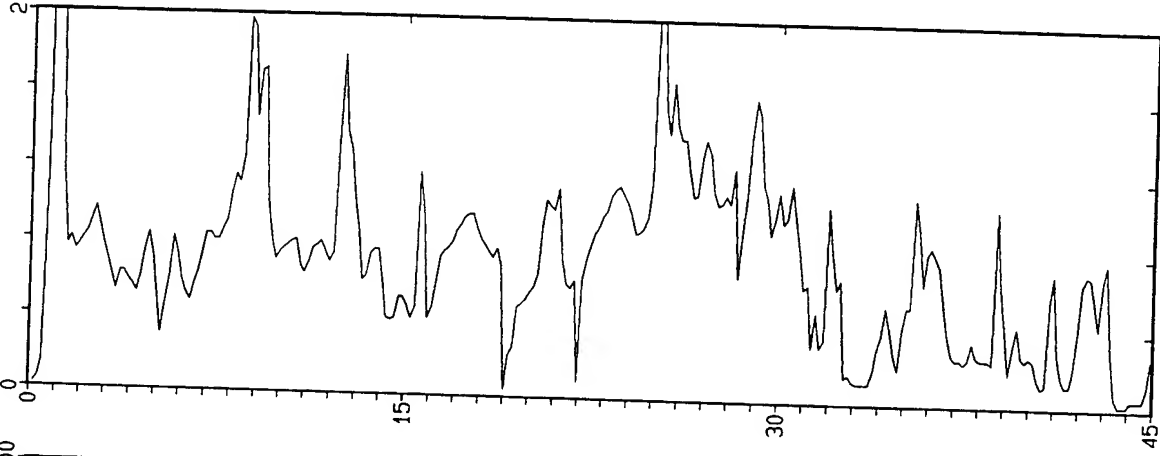
TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m



Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-07-92

DEPTH TO WATER : 25.42 FT BLS

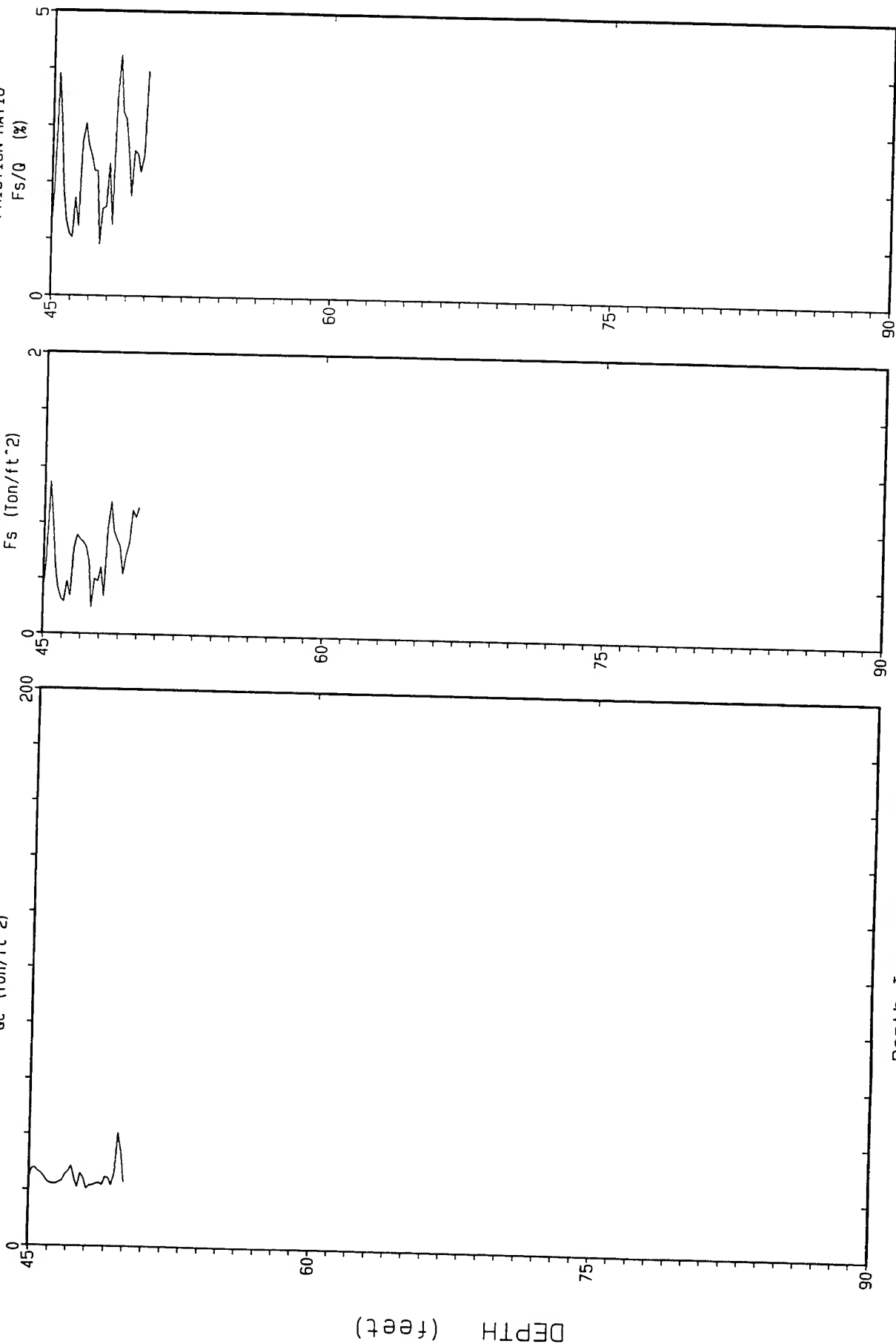
SOUNDING NO. : CPT-14 Pg 2 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-07-92

Location : CPT-14

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.75

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	170.96	0.80	0.47	0.02	sand	>90	>48	33	UNDEFINED
0.50	1.64	62.32	1.67	2.67	0.07	sandy silt to clayey silt	UNDFND	UNDFD	24	2.3
0.75	2.46	30.10	0.81	2.70	0.11	sandy silt to clayey silt	UNDFND	UNDFD	12	1.1
1.00	3.28	26.40	0.79	2.98	0.16	clayey silt to silty clay	UNDFND	UNDFD	13	1.0
1.25	4.10	20.10	0.59	2.93	0.20	clayey silt to silty clay	UNDFND	UNDFD	10	.76
1.50	4.92	19.02	0.69	3.61	0.25	silty clay to clay	UNDFND	UNDFD	12	.72
1.75	5.74	17.10	0.54	3.13	0.29	clayey silt to silty clay	UNDFND	UNDFD	8	.64
2.00	6.56	19.24	0.58	3.01	0.34	clayey silt to silty clay	UNDFND	UNDFD	9	.72
2.25	7.38	17.82	0.77	4.33	0.38	clay	UNDFND	UNDFD	17	.67
2.50	8.20	22.72	0.96	4.21	0.43	silty clay to clay	UNDFND	UNDFD	15	.85
2.75	9.02	42.70	1.55	3.63	0.47	clayey silt to silty clay	UNDFND	UNDFD	20	1.62
3.00	9.84	24.74	1.19	4.82	0.52	clay	UNDFND	UNDFD	24	.93
3.25	10.66	17.34	0.79	4.54	0.56	clay	UNDFND	UNDFD	17	.64
3.50	11.48	19.72	0.72	3.63	0.61	silty clay to clay	UNDFND	UNDFD	13	.73
3.75	12.30	18.00	0.86	4.80	0.65	clay	UNDFND	UNDFD	17	.66
4.00	13.12	22.24	1.28	5.76	0.70	clay	UNDFND	UNDFD	21	.82
4.25	13.94	16.36	0.71	4.32	0.74	clay	UNDFND	UNDFD	16	.60
4.50	14.76	14.70	0.47	3.20	0.79	silty clay to clay	UNDFND	UNDFD	9	.53
4.75	15.58	13.64	0.61	4.47	0.83	clay	UNDFND	UNDFD	13	.49
5.00	16.40	16.62	0.63	3.80	0.88	silty clay to clay	UNDFND	UNDFD	11	.60
5.25	17.22	148.58	0.83	0.56	0.92	sand	70-80	42-44	28	UNDEFINED
5.50	18.04	236.20	0.92	0.39	0.97	gravelly sand to sand	>90	44-46	38	UNDEFINED
5.75	18.86	193.26	0.76	0.39	1.01	sand	80-90	42-44	37	UNDEFINED
6.00	19.69	173.34	0.30	0.17	1.06	sand	80-90	42-44	33	UNDEFINED
6.25	20.51	169.96	0.65	0.38	1.11	sand	80-90	42-44	33	UNDEFINED
6.50	21.33	128.66	0.98	0.76	1.15	sand	70-80	40-42	25	UNDEFINED
6.75	22.15	167.62	0.51	0.30	1.20	sand	70-80	42-44	32	UNDEFINED
7.00	22.97	214.86	0.86	0.40	1.24	sand	80-90	42-44	41	UNDEFINED
7.25	23.79	244.28	1.08	0.44	1.29	sand	80-90	42-44	47	UNDEFINED
7.50	24.61	227.26	0.94	0.41	1.33	sand	80-90	42-44	44	UNDEFINED
7.75	25.43	128.88	1.60	1.24	1.38	sand to silty sand	60-70	40-42	31	UNDEFINED
8.00	26.25	66.94	1.46	2.18	1.41	silty sand to sandy silt	50-60	36-38	21	UNDEFINED
8.25	27.07	117.80	1.21	1.03	1.43	sand to silty sand	60-70	40-42	28	UNDEFINED
8.50	27.89	67.46	1.12	1.66	1.45	silty sand to sandy silt	50-60	36-38	22	UNDEFINED
8.75	28.71	53.96	0.98	1.82	1.47	silty sand to sandy silt	40-50	36-38	17	UNDEFINED
9.00	29.53	45.52	1.35	2.96	1.49	sandy silt to clayey silt	UNDFND	UNDFD	17	1.68
9.25	30.35	25.92	0.98	3.79	1.51	clayey silt to silty clay	UNDFND	UNDFD	12	.93
9.50	31.17	38.74	0.84	2.16	1.52	sandy silt to clayey silt	UNDFND	UNDFD	15	1.42

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	22.26	0.49	2.21	1.54	sandy silt to clayey silt	UNDFND	UNDFD	9	
10.00	32.81	18.58	0.48	2.56	1.56	clayey silt to silty clay	UNDFND	UNDFD	9	
10.25	33.63	13.66	0.11	0.82	1.58	sandy silt to clayey silt	UNDFND	UNDFD	5	.45
10.50	34.45	15.40	0.36	2.31	1.60	clayey silt to silty clay	UNDFND	UNDFD	7	
10.75	35.27	19.50	0.38	1.95	1.62	sandy silt to clayey silt	UNDFND	UNDFD	7	
11.00	36.09	22.34	0.86	3.86	1.64	silty clay to clay	UNDFND	UNDFD	14	.78
11.25	36.91	47.64	0.54	1.14	1.66	silty sand to sandy silt	<40	34-36	15	UNDEFINED
11.50	37.73	20.74	0.26	1.27	1.68	sandy silt to clayey silt	UNDFND	UNDFD	8	
11.75	38.55	21.90	0.25	1.14	1.70	sandy silt to clayey silt	UNDFND	UNDFD	8	.10
12.00	39.37	23.34	0.52	2.22	1.72	sandy silt to clayey silt	UNDFND	UNDFD	9	.81
12.25	40.19	22.66	0.29	1.30	1.74	sandy silt to clayey silt	UNDFND	UNDFD	9	
12.50	41.01	20.70	0.33	1.61	1.76	sandy silt to clayey silt	UNDFND	UNDFD	8	
12.75	41.83	18.86	0.18	0.97	1.78	sandy silt to clayey silt	UNDFND	UNDFD	7	.63
13.00	42.65	20.16	0.61	3.04	1.80	clayey silt to silty clay	UNDFND	UNDFD	10	.60
13.25	43.47	26.92	0.45	1.67	1.82	sandy silt to clayey silt	UNDFND	UNDFD	10	.90
13.50	44.29	21.14	0.03	0.15	1.84	silty sand to sandy silt	<40	<30	7	UNDEFINED
13.75	45.11	23.16	0.20	0.85	1.86	silty sand to sandy silt	<40	<30	7	UNDEFINED
14.00	45.93	25.62	0.60	2.33	1.88	sandy silt to clayey silt	UNDFND	UNDFD	10	.80
14.25	46.75	22.52	0.44	1.95	1.90	sandy silt to clayey silt	UNDFND	UNDFD	9	.70
14.50	47.57	25.08	0.54	2.14	1.91	sandy silt to clayey silt	UNDFND	UNDFD	10	.86
14.75	48.39	22.84	0.46	2.00	1.93	sandy silt to clayey silt	UNDFND	UNDFD	9	.70
15.00	49.21	23.20	0.69	2.97	1.95	clayey silt to silty clay	UNDFND	UNDFD	11	.70
15.25	50.03	29.12	0.77	2.65	1.97	sandy silt to clayey silt	UNDFND	UNDFD	11	1.01

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW
LOCATION : BLDG. 870

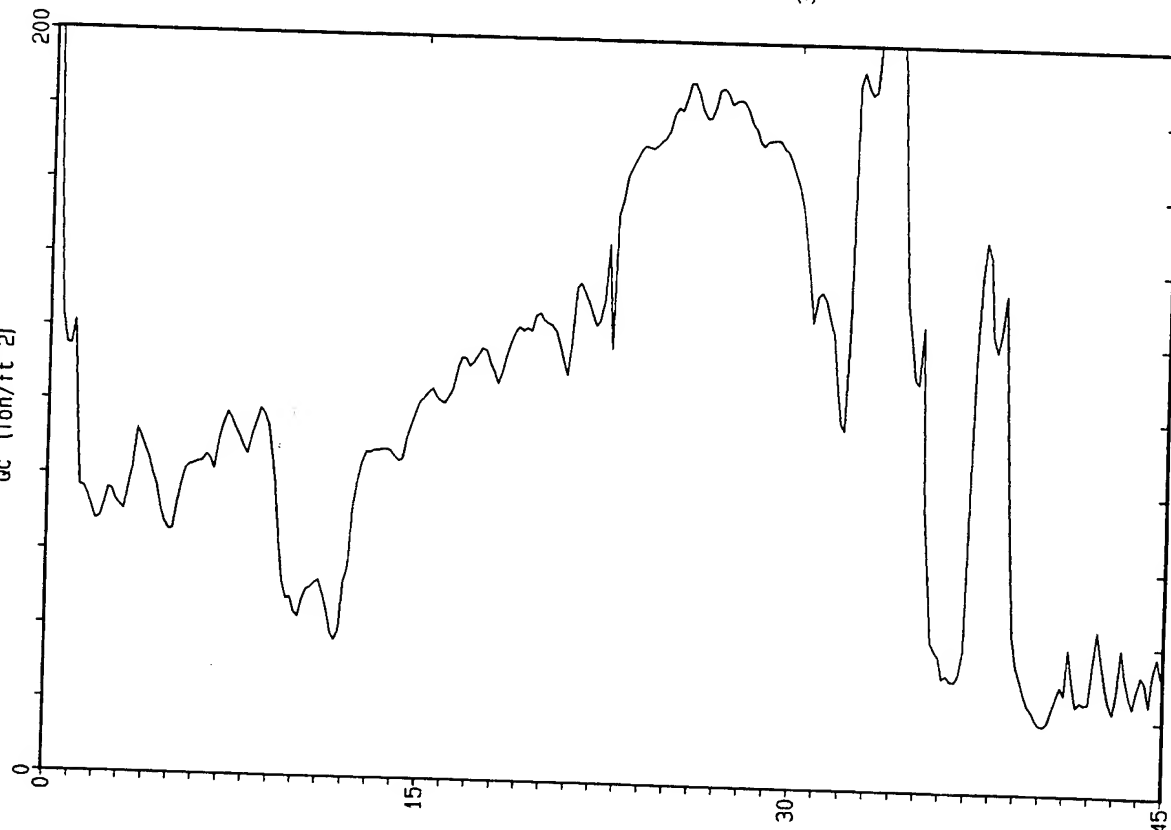
DATE : 08-07-92
DEPTH TO WATER : 32.96 FT BLS

SOUNDING NO. : CPT-15 Pg 1 / 2
TERRA JOB NO. : 92-1016

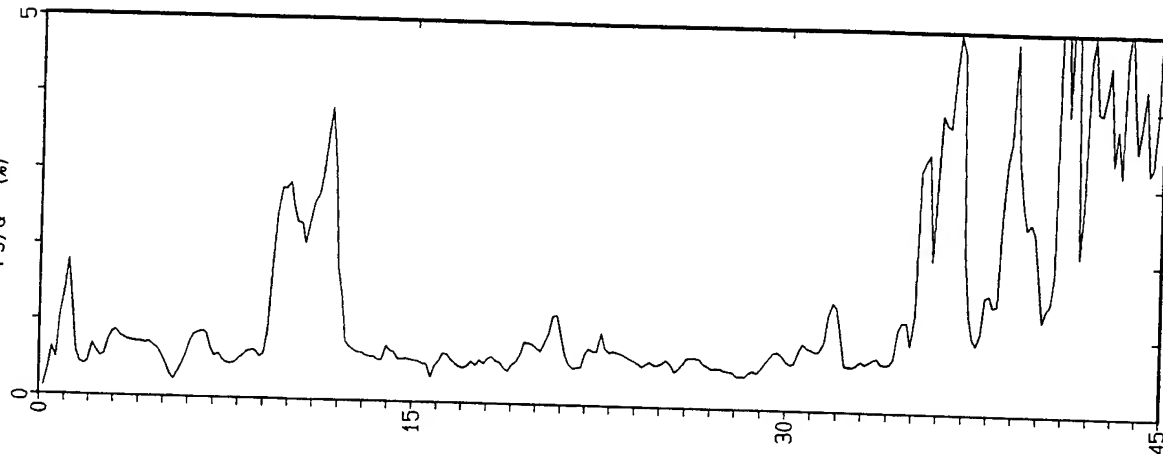
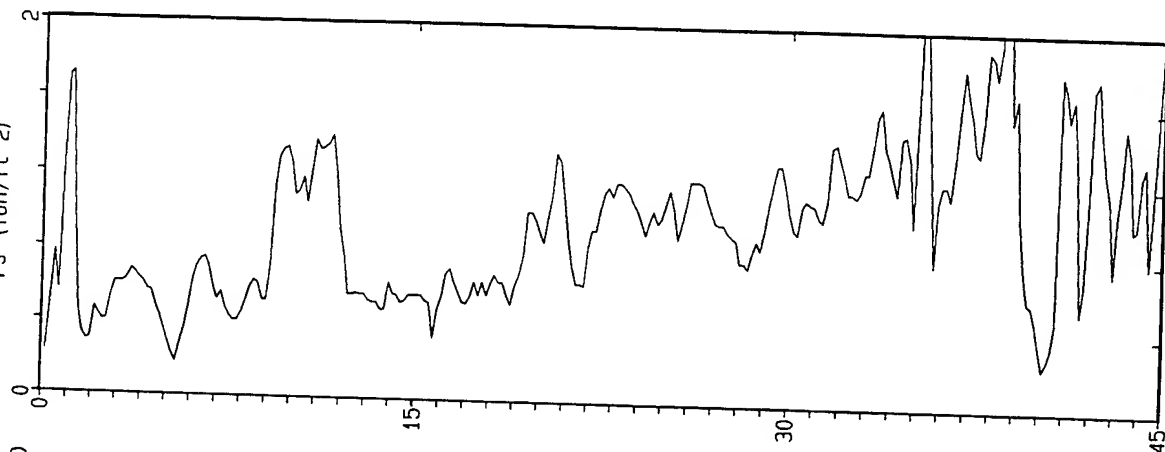
TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m



Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW
LOCATION : BLDG. 870

DATE : 08-07-92

SOUNDING NO. : CPT-15 Pg 2 / 2

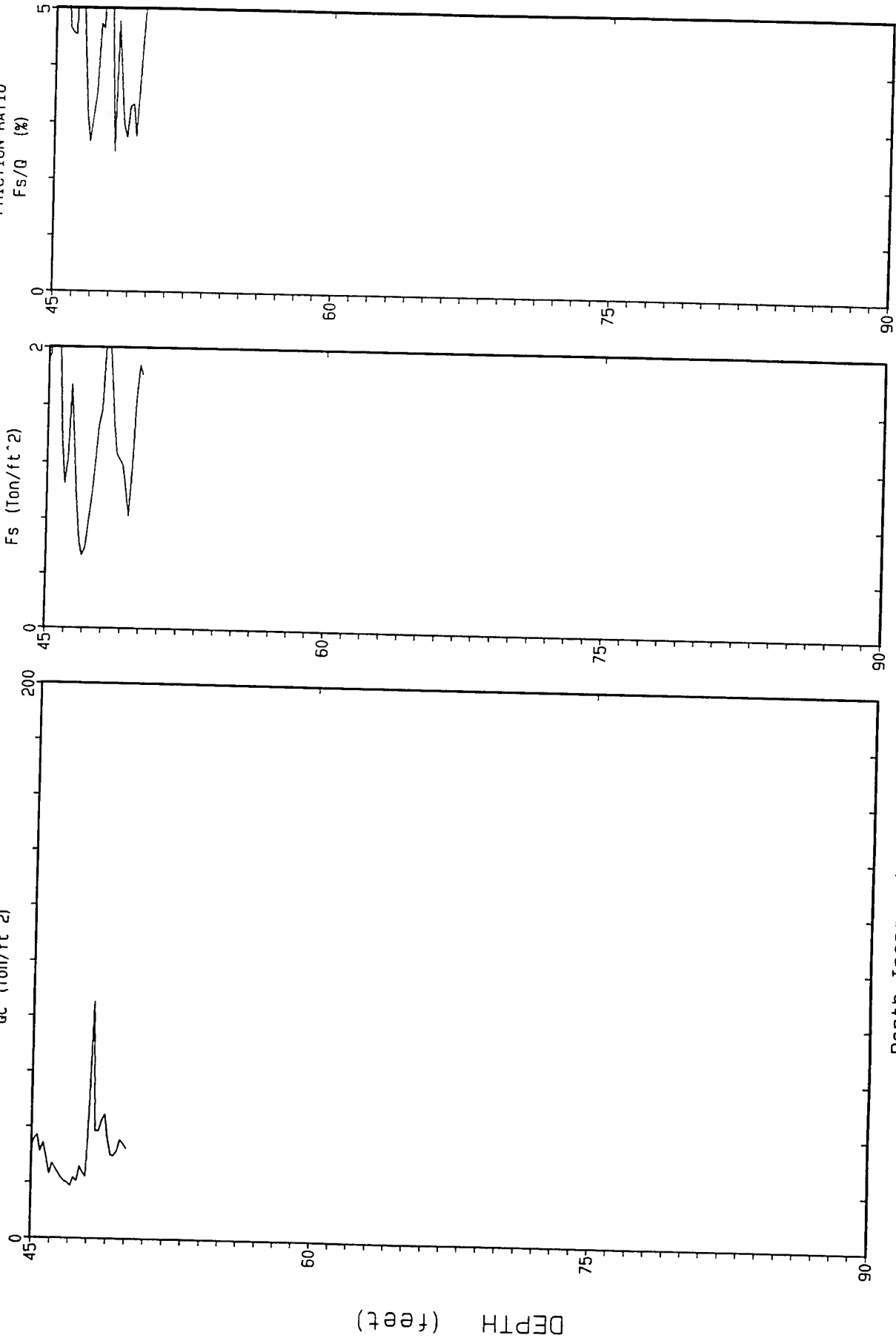
DEPTH TO WATER : 32.96 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870
0

Contractor : TERRA TECH SW

Test Date : 08-07-92

Location : CPT-15

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 10.05

Tot. Unit Wt. (avg) : 100 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	146.48	0.66	0.45	0.02	sand	>90	>48	28	UNDEFINED
0.50	1.64	88.90	1.04	1.17	0.06	sand to silty sand	>90	>48	21	UNDEFINED
0.75	2.46	71.10	0.38	0.53	0.10	sand to silty sand	80-90	>48	17	UNDEFINED
1.00	3.28	73.72	0.55	0.75	0.14	sand to silty sand	80-90	46-48	18	UNDEFINED
1.25	4.10	87.28	0.64	0.74	0.18	sand to silty sand	80-90	46-48	21	UNDEFINED
1.50	4.92	72.38	0.48	0.66	0.23	sand to silty sand	70-80	44-46	17	UNDEFINED
1.75	5.74	76.26	0.27	0.35	0.27	sand to silty sand	70-80	44-46	18	UNDEFINED
2.00	6.56	84.38	0.66	0.78	0.31	sand to silty sand	70-80	44-46	20	UNDEFINED
2.25	7.38	91.78	0.57	0.62	0.35	sand to silty sand	70-80	44-46	22	UNDEFINED
2.50	8.20	89.86	0.44	0.49	0.39	sand to silty sand	70-80	44-46	22	UNDEFINED
2.75	9.02	94.18	0.57	0.61	0.43	sand to silty sand	70-80	44-46	23	UNDEFINED
3.00	9.84	58.00	1.16	2.00	0.47	silty sand to sandy silt	60-70	40-42	19	UNDEFINED
3.25	10.66	47.18	1.14	2.41	0.51	sandy silt to clayey silt	UNDFND	UNDFD	18	1.79
3.50	11.48	47.70	1.33	2.78	0.55	sandy silt to clayey silt	UNDFND	UNDFD	18	1.81
3.75	12.30	51.44	0.97	1.89	0.59	silty sand to sandy silt	50-60	40-42	16	UNDEFINED
4.00	13.12	85.40	0.56	0.65	0.64	sand to silty sand	60-70	42-44	20	UNDEFINED
4.25	13.94	87.76	0.53	0.60	0.68	sand to silty sand	60-70	42-44	21	UNDEFINED
4.50	14.76	91.26	0.55	0.60	0.72	sand to silty sand	60-70	42-44	22	UNDEFINED
4.75	15.58	103.02	0.55	0.53	0.76	sand	70-80	42-44	20	UNDEFINED
5.00	16.40	104.32	0.55	0.53	0.80	sand	70-80	42-44	20	UNDEFINED
5.25	17.22	113.04	0.57	0.50	0.84	sand	70-80	42-44	22	UNDEFINED
5.50	18.04	112.04	0.61	0.54	0.88	sand	70-80	42-44	21	UNDEFINED
5.75	18.86	117.04	0.61	0.52	0.92	sand	70-80	42-44	22	UNDEFINED
6.00	19.69	123.20	0.83	0.67	0.96	sand	70-80	42-44	24	UNDEFINED
6.25	20.51	121.94	0.97	0.80	1.00	sand	70-80	40-42	23	UNDEFINED
6.50	21.33	121.88	1.07	0.88	1.05	sand to silty sand	70-80	40-42	29	UNDEFINED
6.75	22.15	127.02	0.74	0.58	1.09	sand	70-80	40-42	24	UNDEFINED
7.00	22.97	140.66	1.07	0.76	1.13	sand	70-80	42-44	32	UNDEFINED
7.25	23.79	168.26	1.15	0.68	1.17	sand	70-80	42-44	33	UNDEFINED
7.50	24.61	172.58	0.99	0.57	1.21	sand	80-90	42-44	35	UNDEFINED
7.75	25.43	181.28	1.05	0.58	1.25	sand	80-90	42-44	36	UNDEFINED
8.00	26.25	185.40	1.07	0.58	1.29	sand	80-90	42-44	35	UNDEFINED
8.25	27.07	184.98	1.10	0.60	1.33	sand	70-80	42-44	34	UNDEFINED
8.50	27.89	183.98	0.93	0.51	1.37	sand	70-80	40-42	33	UNDEFINED
8.75	28.71	175.42	0.80	0.45	1.41	sand	70-80	40-42	31	UNDEFINED
9.00	29.53	173.28	1.07	0.62	1.46	sand	70-80	40-42	25	UNDEFINED
9.25	30.35	160.14	1.08	0.67	1.50	sand	60-70	40-42		
9.50	31.17	132.04	1.08	0.81	1.54	sand				

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	110.88	1.25	1.13	1.58	sand to silty sand	60-70	38-40	27	UNDEFI
10.00	32.81	176.42	1.17	0.66	1.62	sand	70-80	40-42	34	UNDEFI
10.25	33.63	209.18	1.42	0.68	1.65	sand	80-90	42-44	40	UNDEFI
10.50	34.45	182.38	1.31	0.72	1.67	sand	70-80	40-42	35	UNDEFI
10.75	35.27	108.68	1.57	1.44	1.68	sand to silty sand	60-70	38-40	26	UNDEFI
11.00	36.09	40.52	1.27	3.14	1.70	clayey silt to silty clay	UNDFND	UNDFD	19	1.4
11.25	36.91	32.18	1.41	4.38	1.71	silty clay to clay	UNDFND	UNDFD	21	1.1
11.50	37.73	125.80	1.51	1.20	1.73	sand to silty sand	60-70	38-40	30	UNDEFI
11.75	38.55	120.46	2.04	1.69	1.75	sand to silty sand	60-70	38-40	29	UNDEFI
12.00	39.37	40.30	1.45	3.59	1.76	clayey silt to silty clay	UNDFND	UNDFD	19	1.4
12.25	40.19	20.70	0.45	2.15	1.78	sandy silt to clayey silt	UNDFND	UNDFD	8	
12.50	41.01	24.86	0.92	3.70	1.79	clayey silt to silty clay	UNDFND	UNDFD	12	
12.75	41.83	28.64	1.16	4.05	1.81	silty clay to clay	UNDFND	UNDFD	18	1.02
13.00	42.65	34.26	1.48	4.33	1.82	silty clay to clay	UNDFND	UNDFD	22	1.05
13.25	43.47	29.44	1.15	3.89	1.84	clayey silt to silty clay	UNDFND	UNDFD	14	1.0
13.50	44.29	28.52	1.19	4.18	1.85	silty clay to clay	UNDFND	UNDFD	18	1.01
13.75	45.11	32.68	1.45	4.43	1.87	silty clay to clay	UNDFND	UNDFD	21	1.17
14.00	45.93	30.92	1.90	6.14	1.88	clay	UNDFND	UNDFD	30	1.0
14.25	46.75	23.50	1.18	5.00	1.90	clay	UNDFND	UNDFD	23	0.9
14.50	47.57	21.38	0.81	3.80	1.91	silty clay to clay	UNDFND	UNDFD	14	0.73
14.75	48.39	42.90	1.80	4.20	1.93	clayey silt to silty clay	UNDFND	UNDFD	21	1.0
15.00	49.21	38.28	1.22	3.20	1.95	clayey silt to silty clay	UNDFND	UNDFD	18	1.0
15.25	50.03	32.70	1.46	4.48	1.96	silty clay to clay	UNDFND	UNDFD	21	1.16

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRACONCRETE SW

DATE : 08-08-92-92

SOUNDING NO. : CPT-15 Pg 2 / 2

LOCATION : BLD8LD870870

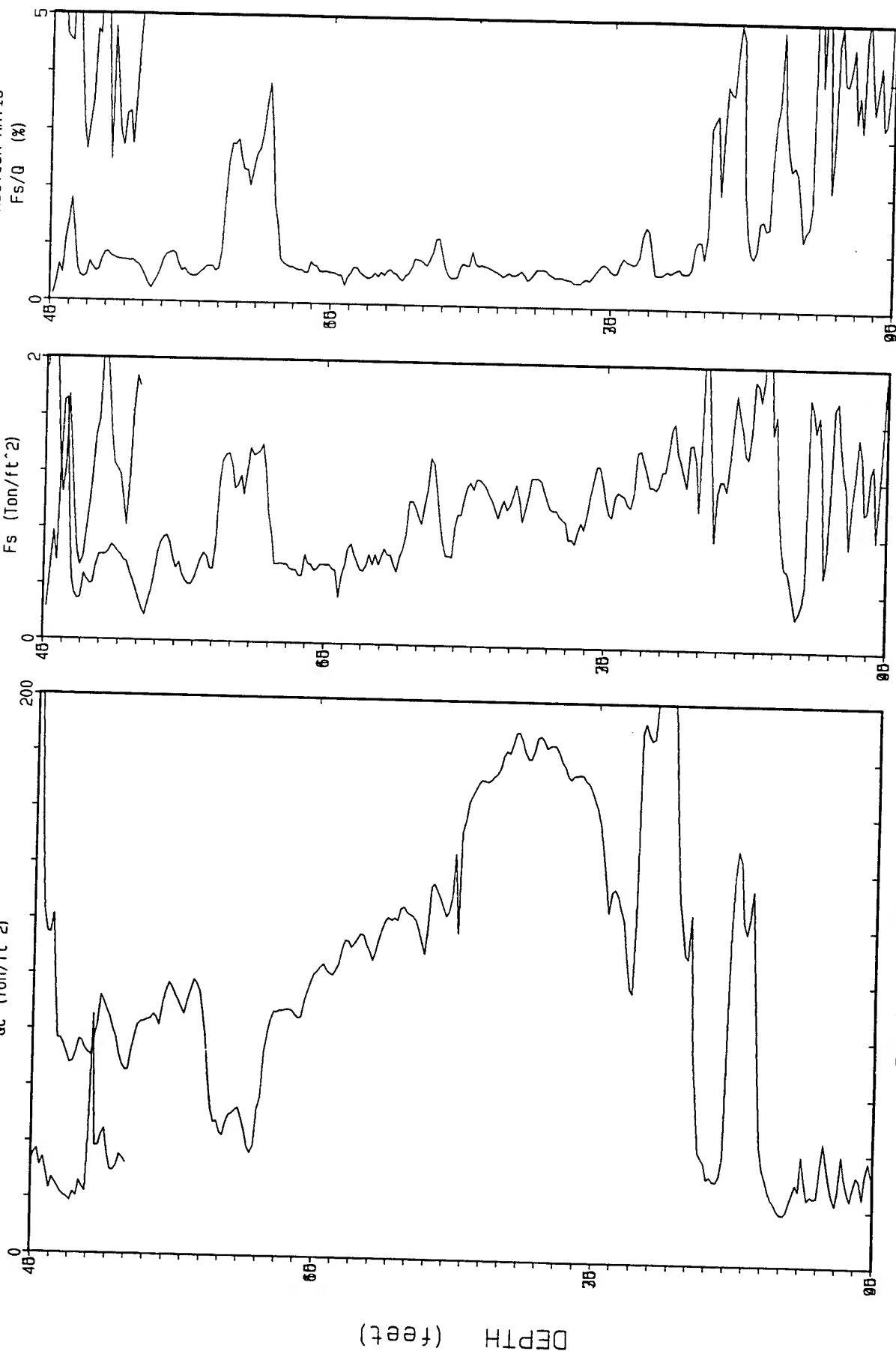
DEPTH (BLVD) : 32.88KROWLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-08-92

DEPTH TO WATER : 31.49 FT BLS

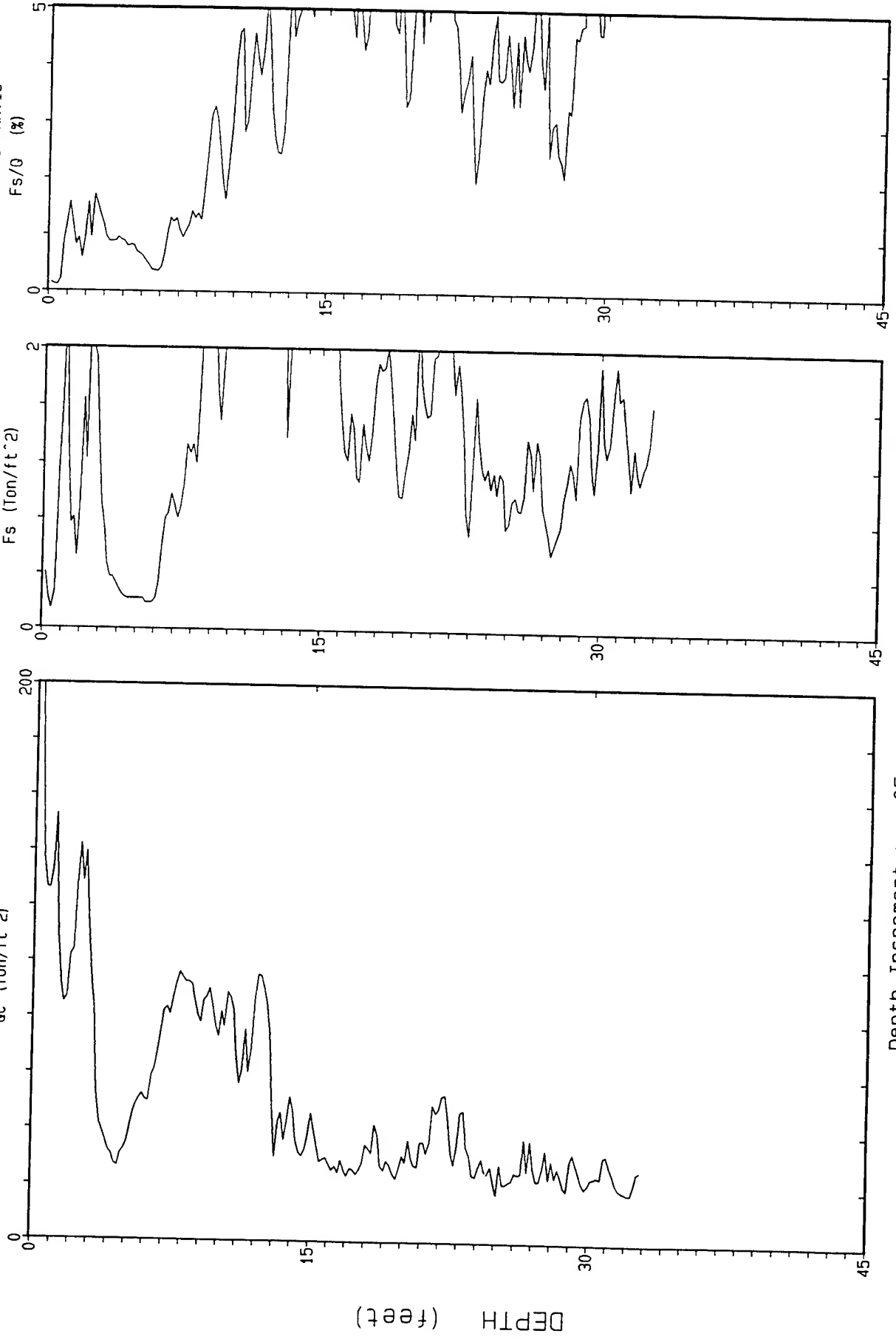
SOUNDING NO. : CPT-16 Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-08-92

Location : CPT-16

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 9.6

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	171.68	0.43	0.25	0.02	sand	>90	>48	33	UNDEFINED
0.50	1.64	114.74	1.40	1.22	0.07	sand to silty sand	>90	>48	27	UNDEFINED
0.75	2.46	112.64	1.36	1.21	0.11	sand to silty sand	>90	>48	27	UNDEFINED
1.00	3.28	111.92	1.40	1.25	0.16	sand to silty sand	>90	>48	27	UNDEFINED
1.25	4.10	40.76	0.37	0.91	0.20	silty sand to sandy silt	60-70	44-46	13	UNDEFINED
1.50	4.92	29.74	0.23	0.77	0.25	silty sand to sandy silt	50-60	40-42	9	UNDEFINED
1.75	5.74	44.06	0.21	0.47	0.29	sand to silty sand	60-70	42-44	11	UNDEFINED
2.00	6.56	54.72	0.44	0.80	0.34	sand to silty sand	60-70	42-44	13	UNDEFINED
2.25	7.38	77.98	0.88	1.13	0.38	sand to silty sand	70-80	44-46	19	UNDEFINED
2.50	8.20	92.82	1.24	1.33	0.43	sand to silty sand	70-80	44-46	22	UNDEFINED
2.75	9.02	86.14	2.35	2.73	0.47	sandy silt to clayey silt	UNDFND	UNDFD	33	3.56
3.00	9.84	85.18	1.93	2.27	0.52	silty sand to sandy silt	70-80	42-44	27	UNDEFINED
3.25	10.66	81.92	3.11	3.80	0.56	clayey silt to silty clay	UNDFND	UNDFD	39	3.39
3.50	11.48	68.80	2.87	4.17	0.61	clayey silt to silty clay	UNDFND	UNDFD	33	2.84
3.75	12.30	81.44	2.81	3.45	0.65	sandy silt to clayey silt	UNDFND	UNDFD	31	3.36
4.00	13.12	65.92	2.47	3.75	0.70	clayey silt to silty clay	UNDFND	UNDFD	32	2.71
4.25	13.94	44.04	2.45	5.57	0.74	clay	UNDFND	UNDFD	42	1.80
4.50	14.76	35.88	2.35	6.54	0.79	clay	UNDFND	UNDFD	34	1.46
4.75	15.58	37.42	2.38	6.36	0.83	clay	UNDFND	UNDFD	36	1.52
5.00	16.40	28.16	1.66	5.89	0.88	clay	UNDFND	UNDFD	27	1.13
5.25	17.22	26.10	1.34	5.13	0.92	clay	UNDFND	UNDFD	25	1.04
5.50	18.04	28.04	1.53	5.46	0.97	clay	UNDFND	UNDFD	27	1.12
5.75	18.86	34.86	1.81	5.19	1.01	clay	UNDFND	UNDFD	33	1.41
6.00	19.69	26.18	1.11	4.26	1.06	silty clay to clay	UNDFND	UNDFD	17	1.04
6.25	20.51	30.68	1.73	5.64	1.11	clay	UNDFND	UNDFD	29	1.23
6.50	21.33	31.88	1.83	5.73	1.15	clay	UNDFND	UNDFD	31	1.28
6.75	22.15	46.44	2.11	4.54	1.20	silty clay to clay	UNDFND	UNDFD	30	1.88
7.00	22.97	38.84	1.31	3.38	1.24	clayey silt to silty clay	UNDFND	UNDFD	19	1.56
7.25	23.79	36.98	1.30	3.52	1.29	clayey silt to silty clay	UNDFND	UNDFD	18	1.48
7.50	24.61	26.40	1.10	4.18	1.33	silty clay to clay	UNDFND	UNDFD	17	1.04
7.75	25.43	23.40	0.92	3.91	1.38	silty clay to clay	UNDFND	UNDFD	15	.91
8.00	26.25	23.30	1.09	4.68	1.42	clay	UNDFND	UNDFD	22	.91
8.25	27.07	30.58	1.09	3.56	1.47	clayey silt to silty clay	UNDFND	UNDFD	15	1.21
8.50	27.89	25.90	0.68	2.61	1.51	clayey silt to silty clay	UNDFND	UNDFD	12	1.01
8.75	28.71	25.18	1.09	4.31	1.56	silty clay to clay	UNDFND	UNDFD	16	.98
9.00	29.53	27.22	1.53	5.62	1.60	clay	UNDFND	UNDFD	26	1.06
9.25	30.35	22.30	1.38	6.19	1.65	clay	UNDFND	UNDFD	21	.86
9.50	31.17	28.02	1.66	5.91	1.69	clay	UNDFND	UNDFD	27	1.09

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	21.12	1.26	5.96	1.73	clay	UNDFND	UNDFD	20	
10.00	32.81	22.10	1.30	5.86	1.75	clay	UNDFND	UNDFD	21	

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 24

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-08-92

DEPTH TO WATER : 11.81 FT BLS

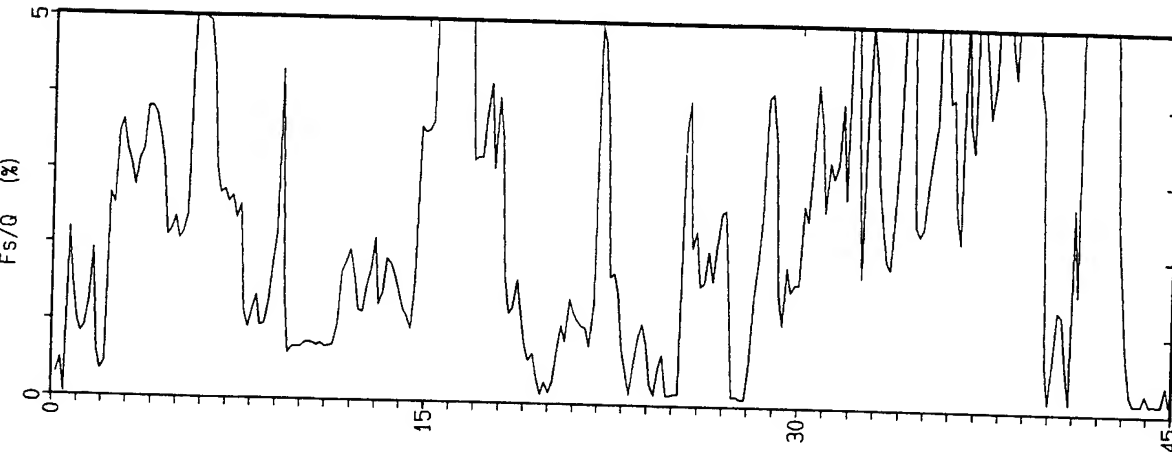
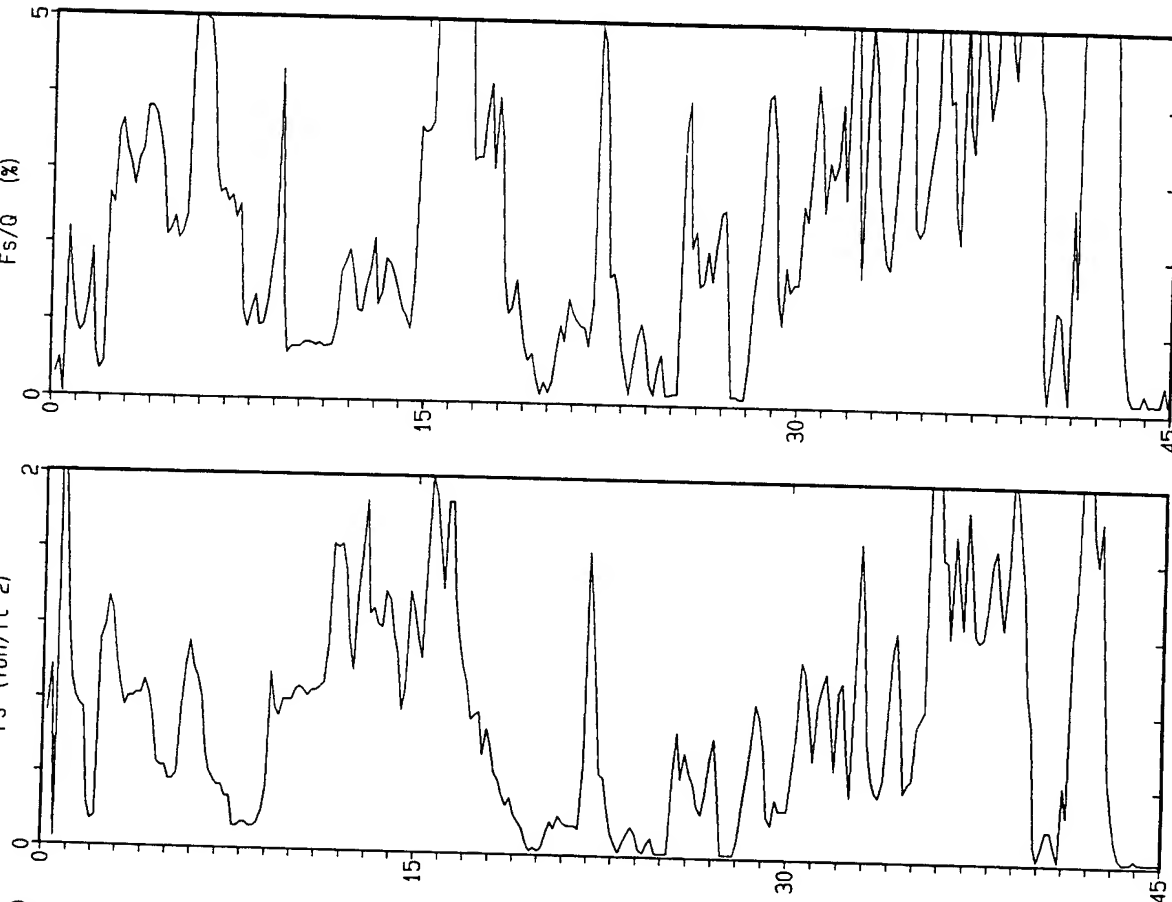
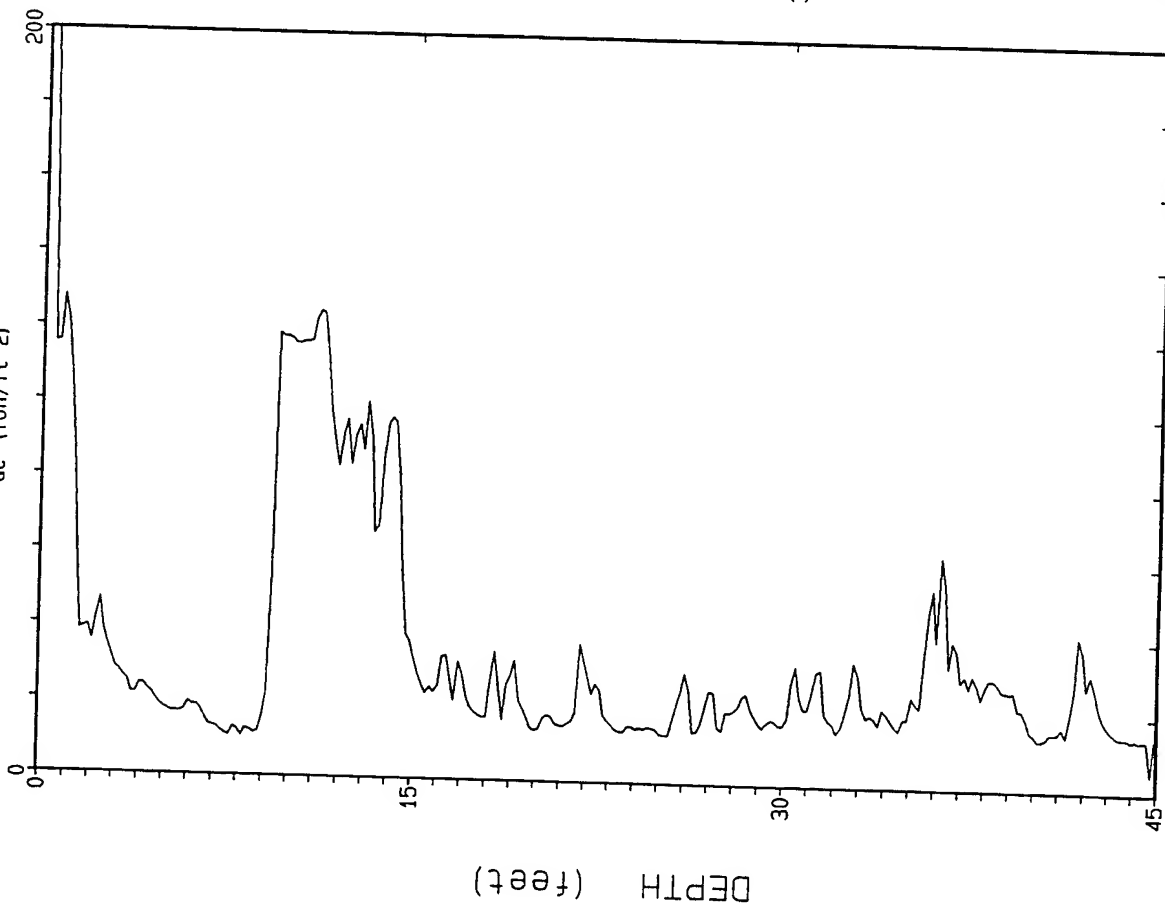
SOUNDING NO. : CPT-17 Pg 1 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-08-92

DEPTH TO WATER : 11.81 FT BLS

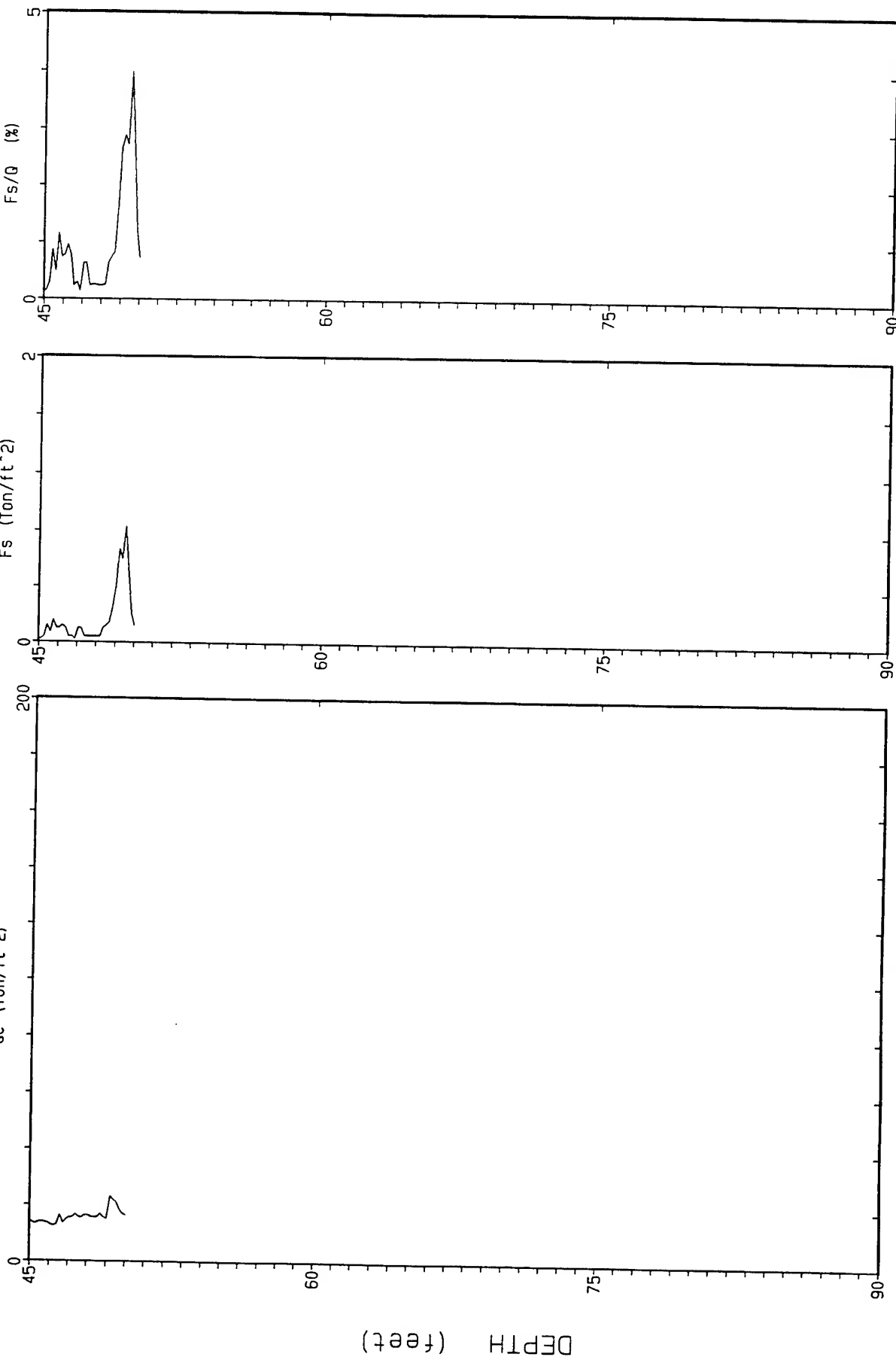
SOUNDING NO. : CPT-17 Pg 2 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-08-92

Location : CPT-17

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 3.6

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	160.74	1.24	0.77	0.02	sand	>90	>48	31	UNDEFINED
0.50	1.64	83.56	0.89	1.06	0.07	sand to silty sand	>90	>48	20	UNDEFINED
0.75	2.46	40.46	0.56	1.39	0.11	silty sand to sandy silt	70-80	46-48	13	UNDEFINED
1.00	3.28	32.10	1.05	3.28	0.16	clayey silt to silty clay	UNDFND	UNDFD	15	1.14
1.25	4.10	23.66	0.84	3.53	0.20	clayey silt to silty clay	UNDFND	UNDFD	11	.83
1.50	4.92	21.42	0.57	2.68	0.25	clayey silt to silty clay	UNDFND	UNDFD	10	.75
1.75	5.74	17.02	0.57	3.35	0.29	silty clay to clay	UNDFND	UNDFD	11	.59
2.00	6.56	18.28	0.87	4.75	0.34	clay	UNDFND	UNDFD	18	.64
2.25	7.38	13.40	0.35	2.61	0.38	clayey silt to silty clay	UNDFND	UNDFD	6	.46
2.50	8.20	11.36	0.16	1.41	0.43	clayey silt to silty clay	UNDFND	UNDFD	5	.39
2.75	9.02	12.70	0.19	1.46	0.47	clayey silt to silty clay	UNDFND	UNDFD	6	.43
3.00	9.84	86.34	0.81	0.94	0.52	sand to silty sand	70-80	42-44	21	UNDEFINED
3.25	10.66	116.68	0.85	0.73	0.56	sand	70-80	44-46	22	UNDEFINED
3.50	11.48	120.18	0.92	0.77	0.61	sand	70-80	44-46	23	UNDEFINED
3.75	12.30	91.90	1.51	1.64	0.65	silty sand to sandy silt	70-80	42-44	29	UNDEFINED
4.00	13.12	91.78	1.42	1.54	0.67	silty sand to sandy silt	60-70	42-44	29	UNDEFINED
4.25	13.94	80.90	1.29	1.59	0.69	silty sand to sandy silt	60-70	40-42	26	UNDEFINED
4.50	14.76	73.44	1.05	1.43	0.71	silty sand to sandy silt	60-70	40-42	23	UNDEFINED
4.75	15.58	28.96	1.42	4.90	0.73	clay	UNDFND	UNDFD	28	1.00
5.00	16.40	27.64	1.74	6.31	0.75	clay	UNDFND	UNDFD	26	.95
5.25	17.22	26.04	1.03	3.96	0.77	silty clay to clay	UNDFND	UNDFD	17	.89
5.50	18.04	17.64	0.66	3.72	0.79	silty clay to clay	UNDFND	UNDFD	11	.59
5.75	18.86	25.54	0.34	1.35	0.81	sandy silt to clayey silt	UNDFND	UNDFD	10	.87
6.00	19.69	23.50	0.12	0.53	0.83	silty sand to sandy silt	<40	34-36	8	UNDEFINED
6.25	20.51	15.22	0.08	0.53	0.85	sandy silt to clayey silt	UNDFND	UNDFD	6	.50
6.50	21.33	15.56	0.17	1.09	0.87	sandy silt to clayey silt	UNDFND	UNDFD	6	.51
6.75	22.15	26.38	0.75	2.84	0.89	clayey silt to silty clay	UNDFND	UNDFD	13	.89
7.00	22.97	21.70	0.42	1.95	0.90	sandy silt to clayey silt	UNDFND	UNDFD	8	.73
7.25	23.79	14.28	0.09	0.62	0.92	sandy silt to clayey silt	UNDFND	UNDFD	5	.46
7.50	24.61	14.70	0.07	0.48	0.94	sandy silt to clayey silt	UNDFND	UNDFD	6	.47
7.75	25.43	13.54	0.11	0.80	0.96	sandy silt to clayey silt	UNDFND	UNDFD	5	.43
8.00	26.25	23.16	0.50	2.17	0.98	sandy silt to clayey silt	UNDFND	UNDFD	9	.77
8.25	27.07	17.94	0.40	2.25	1.00	clayey silt to silty clay	UNDFND	UNDFD	9	.58
8.50	27.89	18.52	0.08	0.43	1.02	silty sand to sandy silt	<40	30-32	6	UNDEFINED
8.75	28.71	21.78	0.45	2.08	1.04	sandy silt to clayey silt	UNDFND	UNDFD	8	.72
9.00	29.53	16.86	0.41	2.46	1.06	clayey silt to silty clay	UNDFND	UNDFD	8	.54
9.25	30.35	18.98	0.39	2.03	1.08	sandy silt to clayey silt	UNDFND	UNDFD	7	.61
9.50	31.17	24.40	0.84	3.43	1.10	clayey silt to silty clay	UNDFND	UNDFD	12	.81

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 28

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	23.06	0.82	3.54	1.12	clayey silt to silty clay	UNDFND	UNDFD	11	.
10.00	32.81	21.68	0.91	4.21	1.14	silty clay to clay	UNDFND	UNDFD	14	.
10.25	33.63	21.54	0.62	2.89	1.16	clayey silt to silty clay	UNDFND	UNDFD	10	.7C
10.50	34.45	18.38	0.87	4.76	1.18	clay	UNDFND	UNDFD	18	.
10.75	35.27	19.80	0.54	2.74	1.20	clayey silt to silty clay	UNDFND	UNDFD	9	.
11.00	36.09	38.98	1.91	4.91	1.22	silty clay to clay	UNDFND	UNDFD	25	1.32
11.25	36.91	45.12	1.46	3.23	1.24	clayey silt to silty clay	UNDFND	UNDFD	22	1.53
11.50	37.73	28.92	1.40	4.85	1.26	clay	UNDFND	UNDFD	28	.9
11.75	38.55	27.80	1.45	5.23	1.28	clay	UNDFND	UNDFD	27	.91
12.00	39.37	25.32	1.74	6.87	1.29	clay	UNDFND	UNDFD	24	.82
12.25	40.19	16.92	0.38	2.22	1.31	clayey silt to silty clay	UNDFND	UNDFD	8	.5
12.50	41.01	14.76	0.18	1.22	1.33	sandy silt to clayey silt	UNDFND	UNDFD	6	.4
12.75	41.83	24.00	1.55	6.46	1.35	clay	UNDFND	UNDFD	23	.77
13.00	42.65	29.16	1.71	5.86	1.37	clay	UNDFND	UNDFD	28	.98
13.25	43.47	16.68	0.18	1.10	1.39	sandy silt to clayey silt	UNDFND	UNDFD	6	.5
13.50	44.29	14.34	0.02	0.17	1.41	sandy silt to clayey silt	UNDFND	UNDFD	5	.42
13.75	45.11	12.30	0.02	0.16	1.43	sandy silt to clayey silt	UNDFND	UNDFD	5	.35
14.00	45.93	13.68	0.10	0.72	1.45	sandy silt to clayey silt	UNDFND	UNDFD	5	.3
14.25	46.75	13.64	0.08	0.59	1.47	sandy silt to clayey silt	UNDFND	UNDFD	5	.3
14.50	47.57	15.68	0.06	0.38	1.49	sandy silt to clayey silt	UNDFND	UNDFD	6	.46
14.75	48.39	16.00	0.05	0.32	1.51	sandy silt to clayey silt	UNDFND	UNDFD	6	.4
15.00	49.21	17.30	0.32	1.84	1.53	sandy silt to clayey silt	UNDFND	UNDFD	7	.52
15.25	50.03	18.96	0.46	2.42	1.55	clayey silt to silty clay	UNDFND	UNDFD	9	.57

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 28

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-08-92

DEPTH TO WATER : 13.45 FT BLS

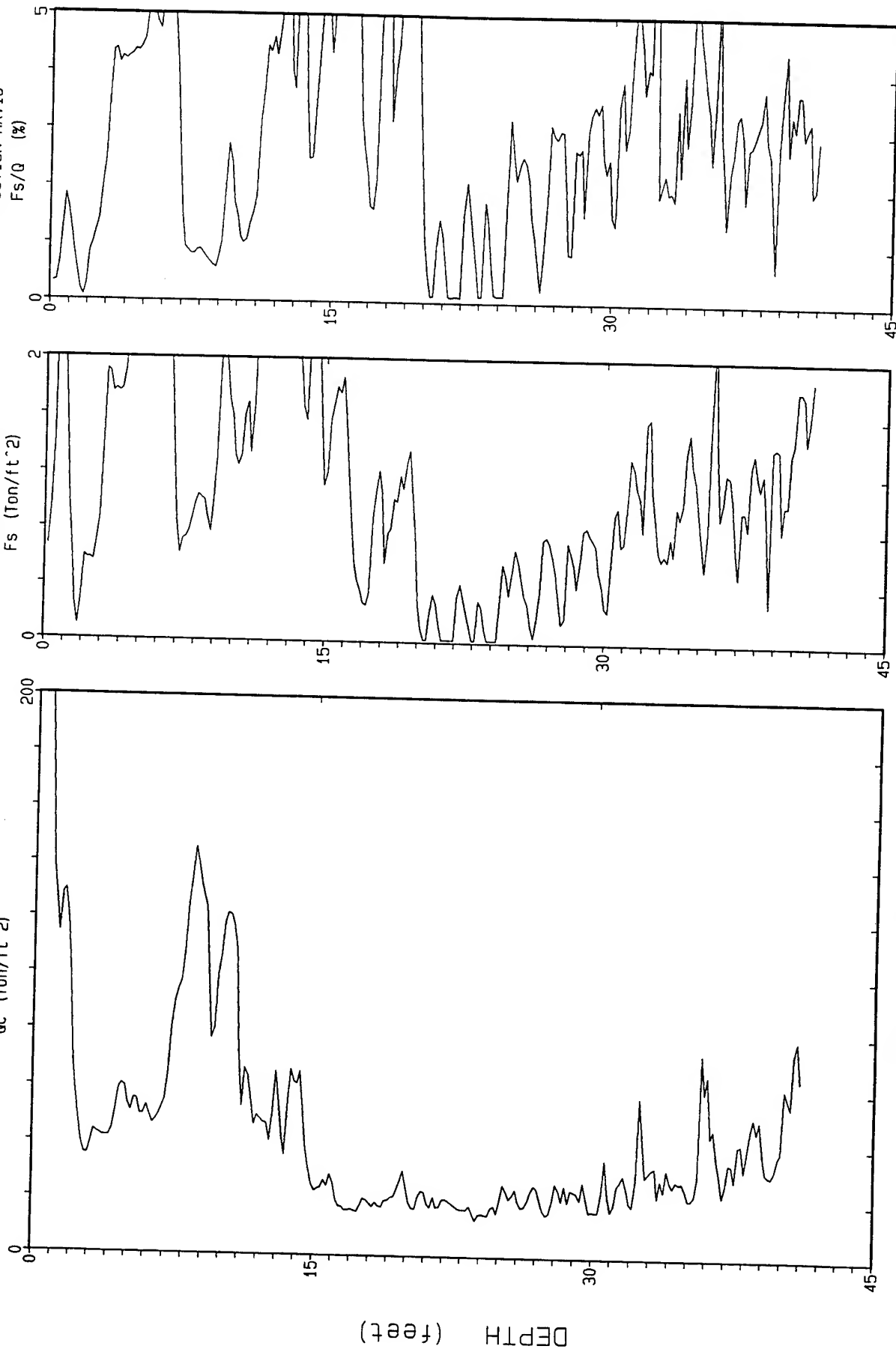
SOUNDING NO. : CPT-18 Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 41.01 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-08-92

Location : CPT-18

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 4.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	230.88	1.87	0.81	0.02	sand	>90	UNDFD	44	UNDEFINED
0.50	1.64	127.70	1.14	0.89	0.07	sand	>90	>48	24	UNDEFINED
0.75	2.46	78.08	0.43	0.55	0.11	sand to silty sand	>90	>48	19	UNDEFINED
1.00	3.28	38.66	1.08	2.80	0.16	sandy silt to clayey silt	UNDFND	UNDFD	15	1.42
1.25	4.10	42.20	1.80	4.26	0.20	silty clay to clay	UNDFND	UNDFD	27	1.55
1.50	4.92	54.90	2.43	4.42	0.25	silty clay to clay	UNDFND	UNDFD	35	2.0
1.75	5.74	53.00	2.68	5.05	0.29	silty clay to clay	UNDFND	UNDFD	34	1.9
2.00	6.56	49.34	2.66	5.38	0.34	clay	UNDFND	UNDFD	47	1.81
2.25	7.38	60.70	1.11	1.84	0.38	silty sand to sandy silt	60-70	42-44	19	UNDEFINED
2.50	8.20	102.80	0.88	0.86	0.43	sand to silty sand	70-80	44-46	25	UNDEFINED
2.75	9.02	136.12	0.94	0.69	0.47	sand	80-90	44-46	26	UNDEFINED
3.00	9.84	95.86	1.82	1.89	0.52	silty sand to sandy silt	70-80	42-44	31	UNDEFINED
3.25	10.66	117.16	1.42	1.21	0.56	sand to silty sand	70-80	44-46	28	UNDEFINED
3.50	11.48	73.22	2.00	2.73	0.61	sandy silt to clayey silt	UNDFND	UNDFD	28	2.6
3.75	12.30	49.72	2.31	4.65	0.65	silty clay to clay	UNDFND	UNDFD	32	1.81
4.00	13.12	52.16	2.58	4.95	0.70	silty clay to clay	UNDFND	UNDFD	33	1.9
4.25	13.94	52.44	2.01	3.84	0.74	clayey silt to silty clay	UNDFND	UNDFD	25	1.9
4.50	14.76	49.10	2.27	4.62	0.76	silty clay to clay	UNDFND	UNDFD	31	1.78
4.75	15.58	24.74	1.47	5.96	0.78	clay	UNDFND	UNDFD	24	.82
5.00	16.40	23.42	1.44	6.16	0.80	clay	UNDFND	UNDFD	22	.83
5.25	17.22	16.52	0.38	2.31	0.82	clayey silt to silty clay	UNDFND	UNDFD	8	.57
5.50	18.04	18.56	0.91	4.91	0.84	clay	UNDFND	UNDFD	18	.65
5.75	18.86	18.34	0.83	4.55	0.86	clay	UNDFND	UNDFD	18	.64
6.00	19.69	22.66	1.19	5.24	0.88	clay	UNDFND	UNDFD	22	.80
6.25	20.51	21.58	0.23	1.08	0.90	sandy silt to clayey silt	UNDFND	UNDFD	8	.75
6.50	21.33	20.80	0.19	0.93	0.92	sandy silt to clayey silt	UNDFND	UNDFD	8	.72
6.75	22.15	19.60	0.08	0.41	0.94	silty sand to sandy silt	<40	32-34	6	UNDEFINED
7.00	22.97	18.30	0.22	1.19	0.96	sandy silt to clayey silt	UNDFND	UNDFD	7	.63
7.25	23.79	16.10	0.14	0.87	0.98	sandy silt to clayey silt	UNDFND	UNDFD	6	.54
7.50	24.61	15.62	0.18	1.15	1.00	sandy silt to clayey silt	UNDFND	UNDFD	6	.52
7.75	25.43	20.98	0.52	2.46	1.01	clayey silt to silty clay	UNDFND	UNDFD	10	.72
8.00	26.25	21.08	0.25	1.20	1.03	sandy silt to clayey silt	UNDFND	UNDFD	8	.72
8.25	27.07	22.60	0.55	2.43	1.05	clayey silt to silty clay	UNDFND	UNDFD	11	.78
8.50	27.89	17.90	0.35	1.96	1.07	sandy silt to clayey silt	UNDFND	UNDFD	7	.60
8.75	28.71	23.42	0.58	2.49	1.09	clayey silt to silty clay	UNDFND	UNDFD	11	.80
9.00	29.53	23.96	0.77	3.22	1.11	clayey silt to silty clay	UNDFND	UNDFD	11	.82
9.25	30.35	17.78	0.40	2.25	1.13	clayey silt to silty clay	UNDFND	UNDFD	9	.59
9.50	31.17	23.54	0.86	3.66	1.15	clayey silt to silty clay	UNDFND	UNDFD	11	.80

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-10-92

DEPTH TO WATER : 32.80 FT BLS

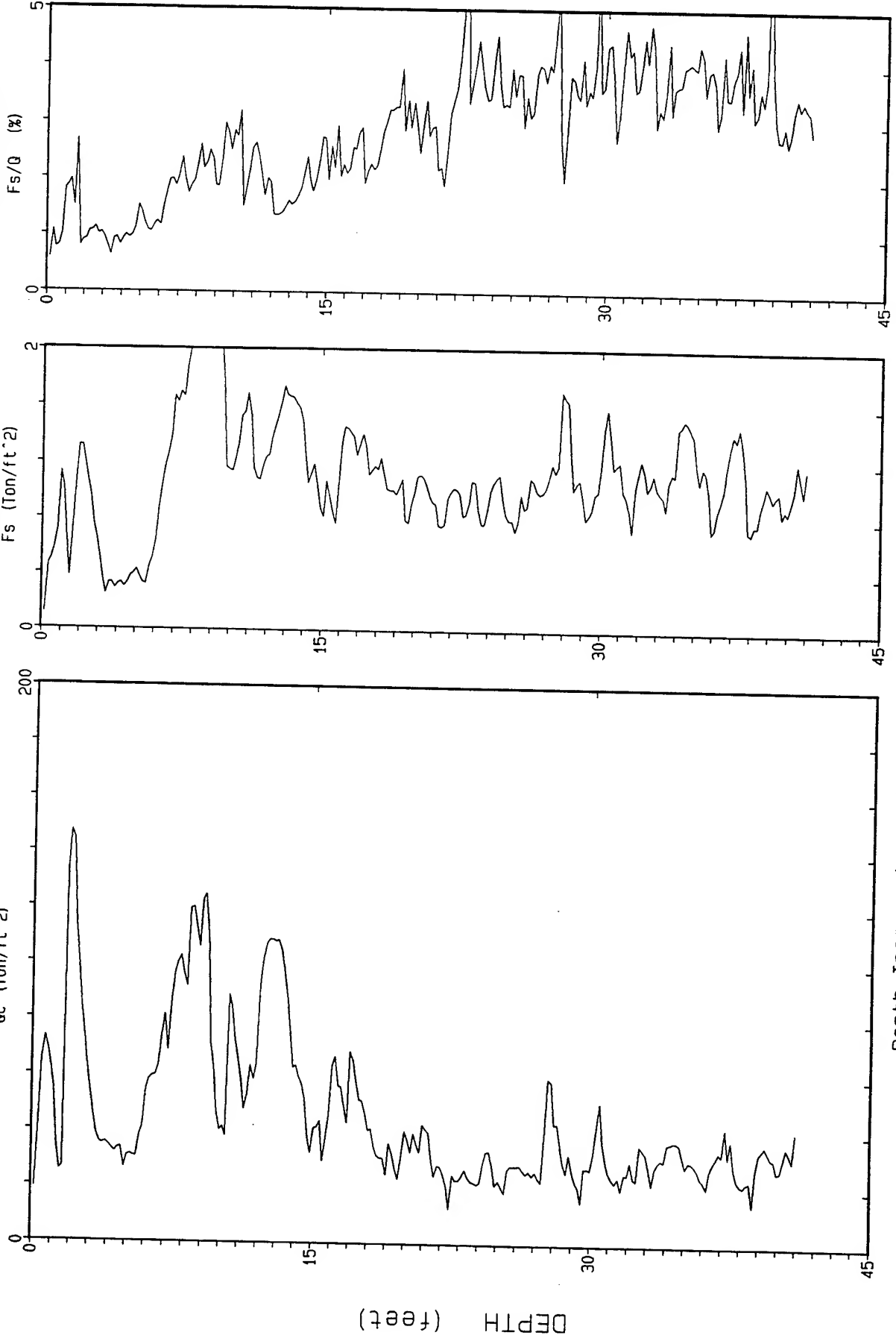
SOUNDING NO. : CPT-25 Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 41.01 ft

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	25.80	1.11	4.29	1.17	silty clay to clay	UNDFND	UNDFD	16	.85
10.00	32.81	35.34	1.16	3.29	1.19	clayey silt to silty clay	UNDFND	UNDFD	17	1.25
10.25	33.63	29.26	0.65	2.21	1.21	sandy silt to clayey silt	UNDFND	UNDFD	11	1.05
10.50	34.45	27.62	1.15	4.15	1.23	silty clay to clay	UNDFND	UNDFD	18	.95
10.75	35.27	24.50	0.93	3.78	1.25	silty clay to clay	UNDFND	UNDFD	16	.85
11.00	36.09	50.16	1.37	2.74	1.27	sandy silt to clayey silt	UNDFND	UNDFD	19	1.75
11.25	36.91	36.18	1.03	2.85	1.29	sandy silt to clayey silt	UNDFND	UNDFD	14	1.25
11.50	37.73	32.78	0.90	2.73	1.31	sandy silt to clayey silt	UNDFND	UNDFD	13	1.15
11.75	38.55	41.90	1.16	2.76	1.33	sandy silt to clayey silt	UNDFND	UNDFD	16	1.45
12.00	39.37	39.08	1.06	2.70	1.35	sandy silt to clayey silt	UNDFND	UNDFD	15	1.35
12.25	40.19	39.88	1.32	3.31	1.37	clayey silt to silty clay	UNDFND	UNDFD	19	1.35
12.50	41.01	65.96	1.70	2.57	1.39	sandy silt to clayey silt	UNDFND	UNDFD	25	2.35

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-08-92

DEPTH TO WATER : 30.67 FT BLS

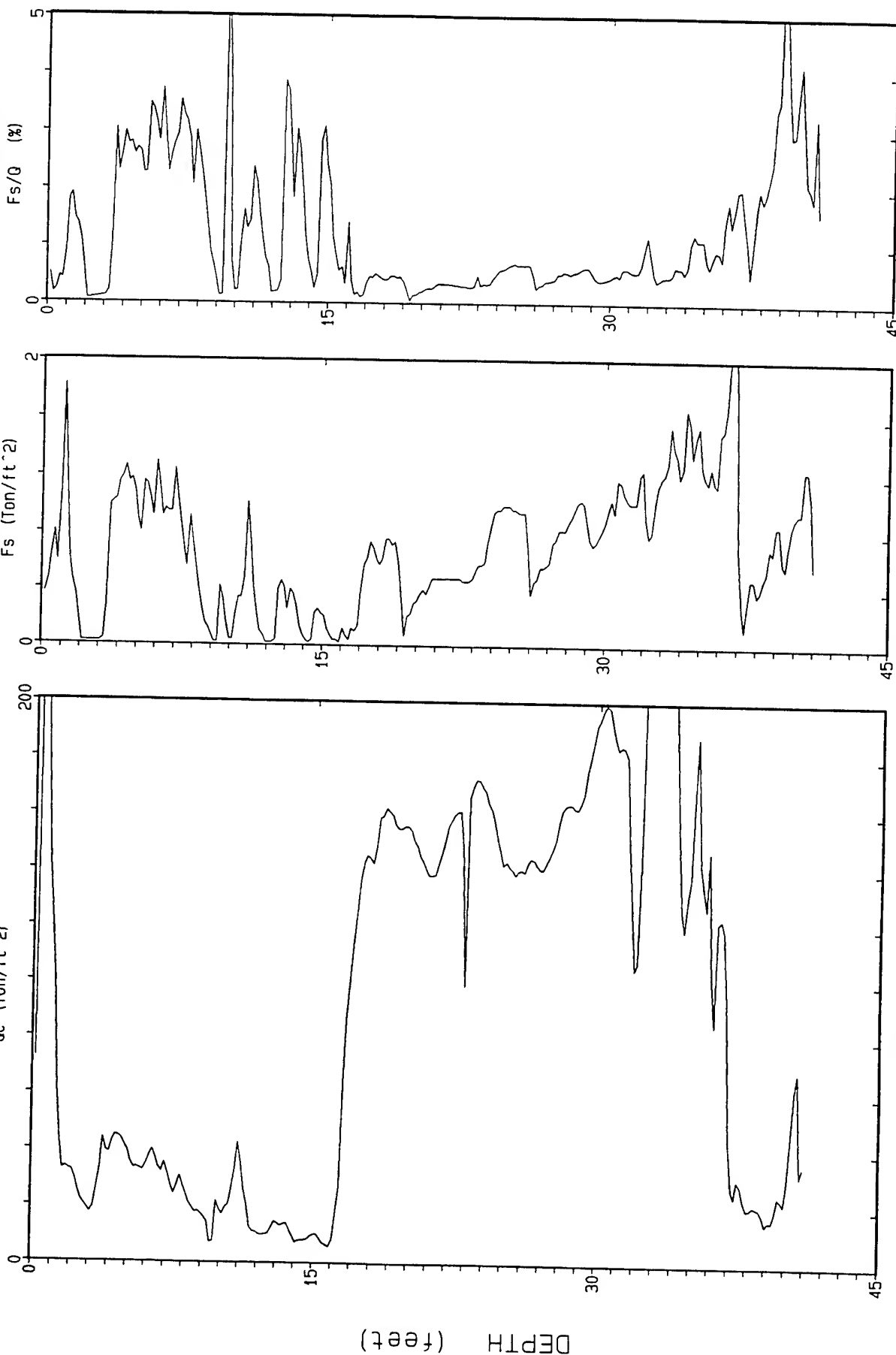
SOUNDING NO. : CPT-19 Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 41.01 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-08-92

Location : CPT-19

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 9.35

Tot. Unit Wt. (avg) : 105 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	190.04	0.58	0.30	0.02	sand	>90	>48	36	UNDEFINED
0.50	1.64	71.44	1.04	1.46	0.06	silty sand to sandy silt	>90	>48	23	UNDEFINED
0.75	2.46	30.76	0.13	0.42	0.11	silty sand to sandy silt	60-70	44-46	10	UNDEFINED
1.00	3.28	19.78	0.02	0.12	0.15	silty sand to sandy silt	40-50	42-44	6	UNDEFINED
1.25	4.10	36.16	0.90	2.49	0.19	sandy silt to clayey silt	UNDFND	UNDFD	14	1.38
1.50	4.92	43.52	1.18	2.71	0.24	sandy silt to clayey silt	UNDFND	UNDFD	17	1.66
1.75	5.74	34.94	1.01	2.89	0.28	sandy silt to clayey silt	UNDFND	UNDFD	13	1.33
2.00	6.56	36.44	1.05	2.88	0.32	sandy silt to clayey silt	UNDFND	UNDFD	14	1.38
2.25	7.38	32.18	1.01	3.15	0.37	clayey silt to silty clay	UNDFND	UNDFD	15	1.22
2.50	8.20	26.76	0.70	2.60	0.41	sandy silt to clayey silt	UNDFND	UNDFD	10	1.01
2.75	9.02	18.82	0.20	1.07	0.45	sandy silt to clayey silt	UNDFND	UNDFD	7	.70
3.00	9.84	13.40	0.19	1.40	0.50	sandy silt to clayey silt	UNDFND	UNDFD	5	.49
3.25	10.66	20.40	0.19	0.95	0.54	sandy silt to clayey silt	UNDFND	UNDFD	8	.76
3.50	11.48	31.46	0.58	1.84	0.58	sandy silt to clayey silt	UNDFND	UNDFD	12	1.18
3.75	12.30	10.92	0.05	0.42	0.62	sandy silt to clayey silt	UNDFND	UNDFD	4	.39
4.00	13.12	12.28	0.32	2.57	0.67	clayey silt to silty clay	UNDFND	UNDFD	6	.44
4.25	13.94	12.42	0.25	2.03	0.71	clayey silt to silty clay	UNDFND	UNDFD	6	.45
4.50	14.76	7.96	0.12	1.48	0.75	clayey silt to silty clay	UNDFND	UNDFD	4	.27
4.75	15.58	9.02	0.13	1.49	0.80	clayey silt to silty clay	UNDFND	UNDFD	4	.31
5.00	16.40	12.96	0.06	0.45	0.84	sandy silt to clayey silt	UNDFND	UNDFD	5	.46
5.25	17.22	97.86	0.27	0.27	0.88	sand	60-70	40-42	19	UNDEFINED
5.50	18.04	142.34	0.65	0.46	0.93	sand	70-80	42-44	27	UNDEFINED
5.75	18.86	157.98	0.72	0.46	0.97	sand	80-90	42-44	30	UNDEFINED
6.00	19.69	156.36	0.30	0.19	1.01	sand	70-80	42-44	30	UNDEFINED
6.25	20.51	150.98	0.35	0.23	1.05	sand	70-80	42-44	29	UNDEFINED
6.50	21.33	139.88	0.47	0.33	1.10	sand	70-80	42-44	27	UNDEFINED
6.75	22.15	150.72	0.48	0.32	1.14	sand	70-80	42-44	29	UNDEFINED
7.00	22.97	146.10	0.47	0.32	1.18	sand	70-80	40-42	28	UNDEFINED
7.25	23.79	170.26	0.61	0.36	1.23	sand	70-80	42-44	33	UNDEFINED
7.50	24.61	160.96	0.95	0.59	1.27	sand	70-80	42-44	31	UNDEFINED
7.75	25.43	143.06	0.98	0.68	1.31	sand	70-80	40-42	27	UNDEFINED
8.00	26.25	140.56	0.69	0.49	1.36	sand	70-80	40-42	27	UNDEFINED
8.25	27.07	142.60	0.56	0.39	1.40	sand	70-80	40-42	27	UNDEFINED
8.50	27.89	149.48	0.80	0.53	1.44	sand	70-80	40-42	29	UNDEFINED
8.75	28.71	163.20	0.97	0.59	1.49	sand	70-80	40-42	31	UNDEFINED
9.00	29.53	170.28	0.82	0.48	1.53	sand	70-80	40-42	33	UNDEFINED
9.25	30.35	193.84	0.90	0.46	1.57	sand	70-80	40-42	37	UNDEFINED
9.50	31.17	189.26	1.08	0.57	1.61	sand	70-80	40-42	36	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	149.02	1.11	0.74	1.63	sand	70-80	40-42	29	UNDEFIN
10.00	32.81	187.90	0.93	0.50	1.65	sand	70-80	40-42	36	UNDEFIN
10.25	33.63	242.94	1.34	0.55	1.66	sand	80-90	42-44	47	UNDEFIN
10.50	34.45	182.06	1.41	0.77	1.68	sand	70-80	40-42	35	UNDEFIN
10.75	35.27	148.72	1.37	0.92	1.70	sand	70-80	40-42	28	UNDEFIN
11.00	36.09	130.96	1.25	0.95	1.72	sand to silty sand	60-70	38-40	31	UNDEFIN
11.25	36.91	108.92	1.92	1.76	1.73	silty sand to sandy silt	60-70	38-40	35	UNDEFIN
11.50	37.73	31.32	0.38	1.21	1.75	silty sand to sandy silt	<40	30-32	10	UNDEFIN
11.75	38.55	21.56	0.45	2.10	1.77	sandy silt to clayey silt	UNDFND	UNDFD	8	.58
12.00	39.37	17.32	0.74	4.26	1.79	clay	UNDFND	UNDFD	17	.58
12.25	40.19	24.16	0.81	3.34	1.80	clayey silt to silty clay	UNDFND	UNDFD	12	.58
12.50	41.01	48.52	1.01	2.08	1.82	sandy silt to clayey silt	UNDFND	UNDFD	19	1.58

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-08-92

SOUNDING NO. : CPT-20 Pg 1 / 1

LOCATION : BLDG. 870

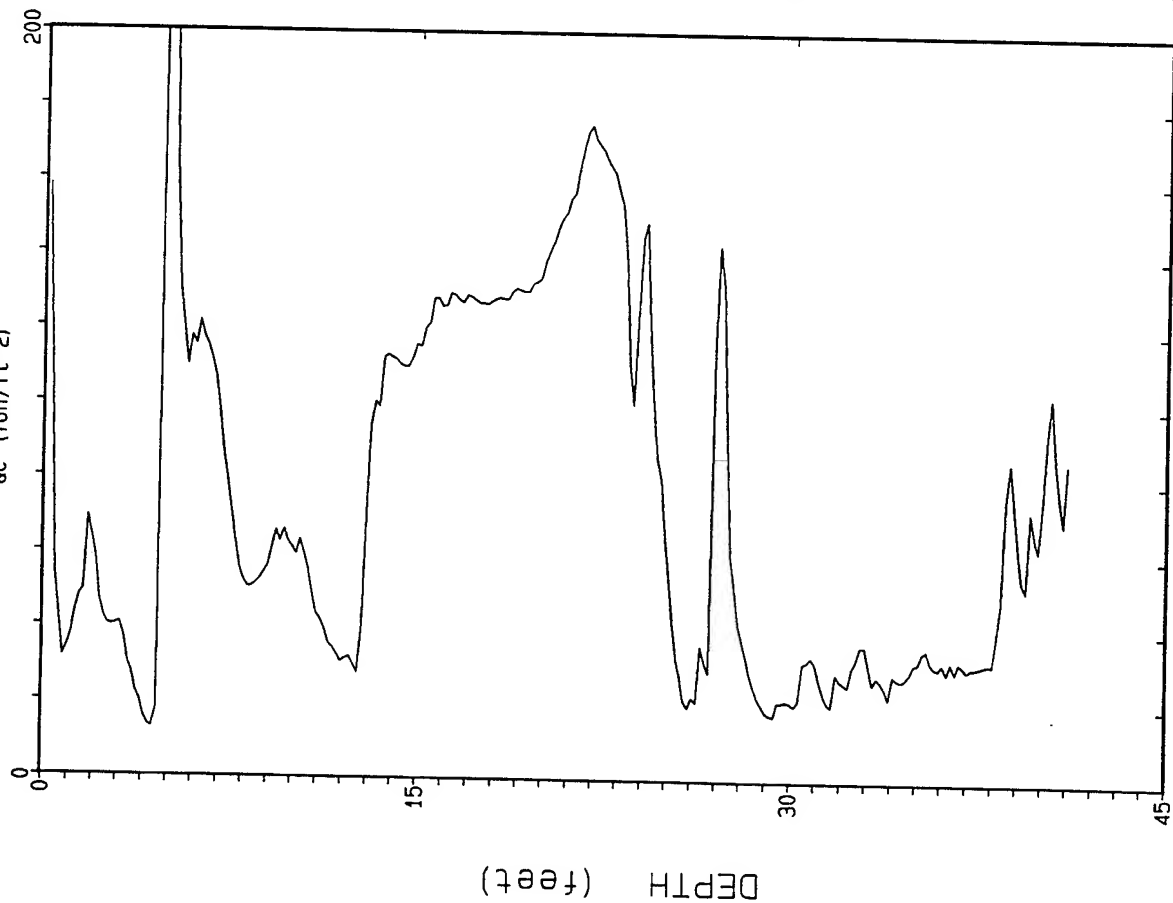
DEPTH TO WATER : 25.09 FT BLS

TERRA JOB NO. : 92-1016

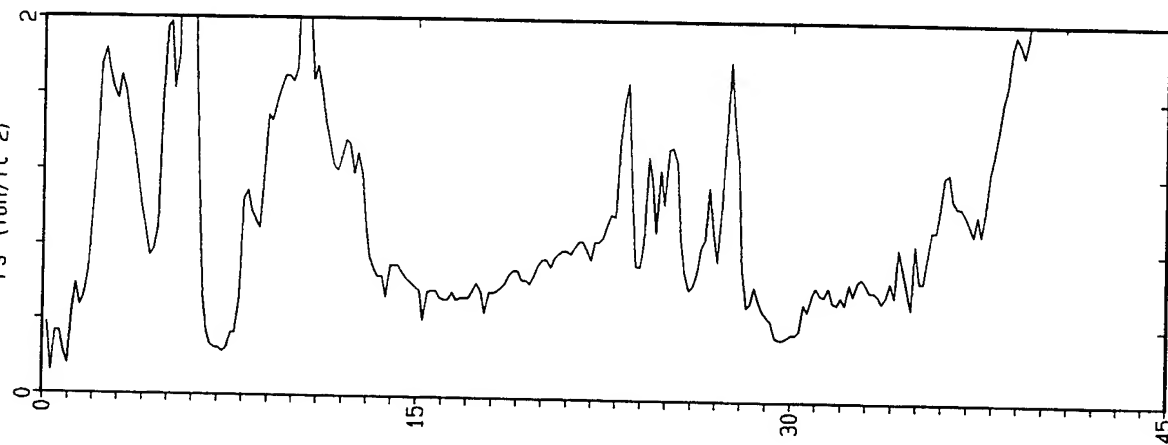
TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

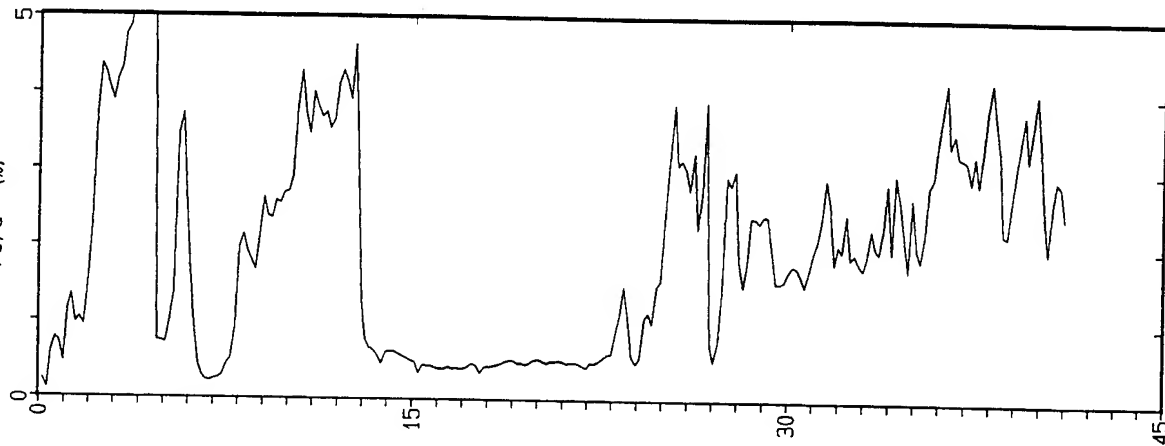
FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m



Max Depth : 41.01 ft



1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-08-92

Location : CPT-20

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.65

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	77.60	0.28	0.36	0.02	sand to silty sand	>90	>48	19	UNDEFINED
0.50	1.64	42.52	0.43	1.02	0.07	silty sand to sandy silt	80-90	>48	14	UNDEFINED
0.75	2.46	56.20	1.30	2.32	0.11	sandy silt to clayey silt	UNDFND	UNDFD	22	2.1
1.00	3.28	39.68	1.64	4.14	0.16	clayey silt to silty clay	UNDFND	UNDFD	19	1.52
1.25	4.10	23.28	1.17	5.03	0.20	clay	UNDFND	UNDFD	22	.92
1.50	4.92	101.44	1.18	1.16	0.25	sand to silty sand	80-90	46-48	24	UNDEFINED
1.75	5.74	159.84	2.75	1.72	0.29	sand to silty sand	>90	>48	38	UNDEFINED
2.00	6.56	117.52	1.42	1.21	0.34	sand to silty sand	80-90	46-48	28	UNDEFINED
2.25	7.38	96.66	0.25	0.26	0.38	sand	70-80	44-46	19	UNDEFINED
2.50	8.20	58.76	0.66	1.13	0.43	silty sand to sandy silt	60-70	42-44	19	UNDEFINED
2.75	9.02	53.20	1.10	2.06	0.47	sandy silt to clayey silt	UNDFND	UNDFD	20	2.10
3.00	9.84	63.74	1.61	2.53	0.52	sandy silt to clayey silt	UNDFND	UNDFD	24	2.52
3.25	10.66	59.90	2.10	3.50	0.56	clayey silt to silty clay	UNDFND	UNDFD	29	2.3
3.50	11.48	41.74	1.57	3.76	0.61	clayey silt to silty clay	UNDFND	UNDFD	20	1.64
3.75	12.30	32.36	1.28	3.96	0.65	clayey silt to silty clay	UNDFND	UNDFD	15	1.26
4.00	13.12	52.58	1.06	2.02	0.70	silty sand to sandy silt	50-60	38-40	17	UNDEFINED
4.25	13.94	107.70	0.64	0.59	0.74	sand	70-80	42-44	21	UNDEFINED
4.50	14.76	111.08	0.66	0.59	0.79	sand	70-80	42-44	21	UNDEFINED
4.75	15.58	120.40	0.54	0.45	0.83	sand	70-80	42-44	23	UNDEFINED
5.00	16.40	127.98	0.54	0.42	0.88	sand	70-80	42-44	25	UNDEFINED
5.25	17.22	128.26	0.54	0.42	0.92	sand	70-80	42-44	25	UNDEFINED
5.50	18.04	127.46	0.55	0.43	0.97	sand	70-80	42-44	24	UNDEFINED
5.75	18.86	129.38	0.62	0.48	1.01	sand	70-80	42-44	25	UNDEFINED
6.00	19.69	131.40	0.64	0.49	1.06	sand	70-80	40-42	25	UNDEFINED
6.25	20.51	141.14	0.73	0.52	1.11	sand	70-80	42-44	27	UNDEFINED
6.50	21.33	155.64	0.79	0.51	1.15	sand	70-80	42-44	30	UNDEFINED
6.75	22.15	172.12	0.81	0.47	1.20	sand	70-80	42-44	33	UNDEFINED
7.00	22.97	163.86	0.92	0.56	1.24	sand	70-80	42-44	31	UNDEFINED
7.25	23.79	125.56	1.28	1.02	1.29	sand to silty sand	60-70	40-42	30	UNDEFINED
7.50	24.61	120.08	0.98	0.81	1.33	sand	60-70	40-42	23	UNDEFINED
7.75	25.43	55.24	1.24	2.24	1.38	sandy silt to clayey silt	UNDFND	UNDFD	21	2.15
8.00	26.25	22.34	0.68	3.06	1.40	clayey silt to silty clay	UNDFND	UNDFD	11	.83
8.25	27.07	71.24	0.89	1.24	1.42	silty sand to sandy silt	50-60	36-38	23	UNDEFINED
8.50	27.89	76.84	1.40	1.82	1.44	silty sand to sandy silt	50-60	36-38	25	UNDEFINED
8.75	28.71	29.42	0.57	1.94	1.46	sandy silt to clayey silt	UNDFND	UNDFD	11	1.11
9.00	29.53	19.06	0.41	2.13	1.48	sandy silt to clayey silt	UNDFND	UNDFD	7	.69
9.25	30.35	21.12	0.35	1.68	1.50	sandy silt to clayey silt	UNDFND	UNDFD	8	.77
9.50	31.17	31.00	0.55	1.77	1.51	sandy silt to clayey silt	UNDFND	UNDFD	12	1.17

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	24.18	0.56	2.30	1.53	sandy silt to clayey silt	UNDFND	UNDFD	9	.85
10.00	32.81	30.26	0.60	2.00	1.55	sandy silt to clayey silt	UNDFND	UNDFD	12	1.13
10.25	33.63	29.70	0.58	1.96	1.57	sandy silt to clayey silt	UNDFND	UNDFD	11	1.11
10.50	34.45	26.08	0.66	2.53	1.59	sandy silt to clayey silt	UNDFND	UNDFD	10	.96
10.75	35.27	30.94	0.65	2.09	1.61	sandy silt to clayey silt	UNDFND	UNDFD	12	1.16
11.00	36.09	32.16	0.97	3.02	1.63	clayey silt to silty clay	UNDFND	UNDFD	15	1.20
11.25	36.91	30.76	1.08	3.50	1.65	clayey silt to silty clay	UNDFND	UNDFD	15	1.15
11.50	37.73	30.82	0.95	3.10	1.67	clayey silt to silty clay	UNDFND	UNDFD	15	1.15
11.75	38.55	45.22	1.46	3.22	1.69	clayey silt to silty clay	UNDFND	UNDFD	22	1.72
12.00	39.37	65.62	1.90	2.90	1.71	sandy silt to clayey silt	UNDFND	UNDFD	25	2.53
12.25	40.19	73.80	2.43	3.29	1.73	sandy silt to clayey silt	UNDFND	UNDFD	28	2.86
12.50	41.01	84.46	2.12	2.51	1.75	sandy silt to clayey silt	UNDFND	UNDFD	32	3.28

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW
LOCATION : BLDG. 870

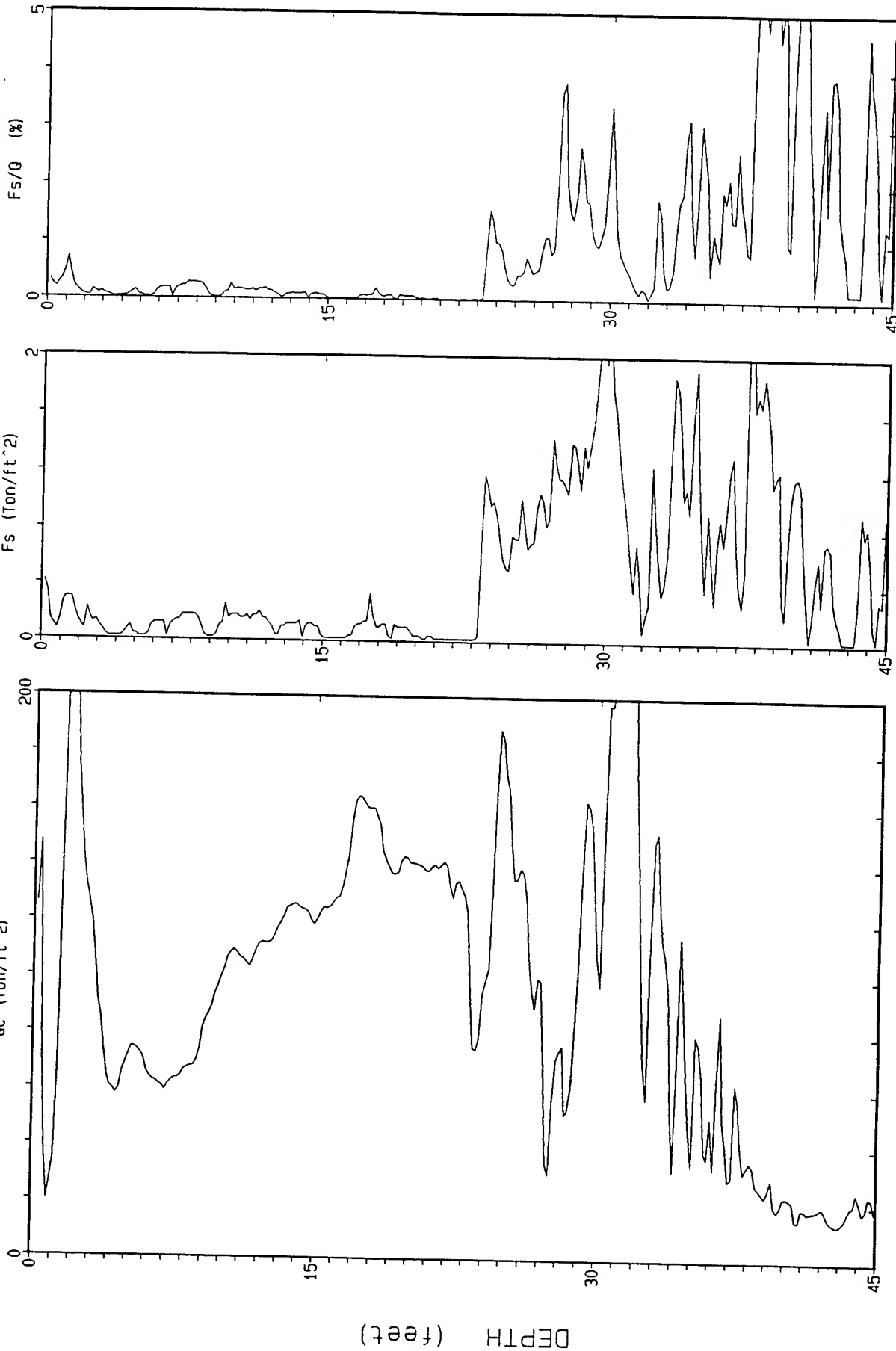
DATE : 08-08-92
DEPTH TO WATER : 31.82 FT BLS

SOUNDING NO. : CPT-21 Pg 1 / 2
TERRA JOB NO. : 92-1016

TIP RESISTANCE
 q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-08-92

DEPTH TO WATER : 31.82 FT BLS

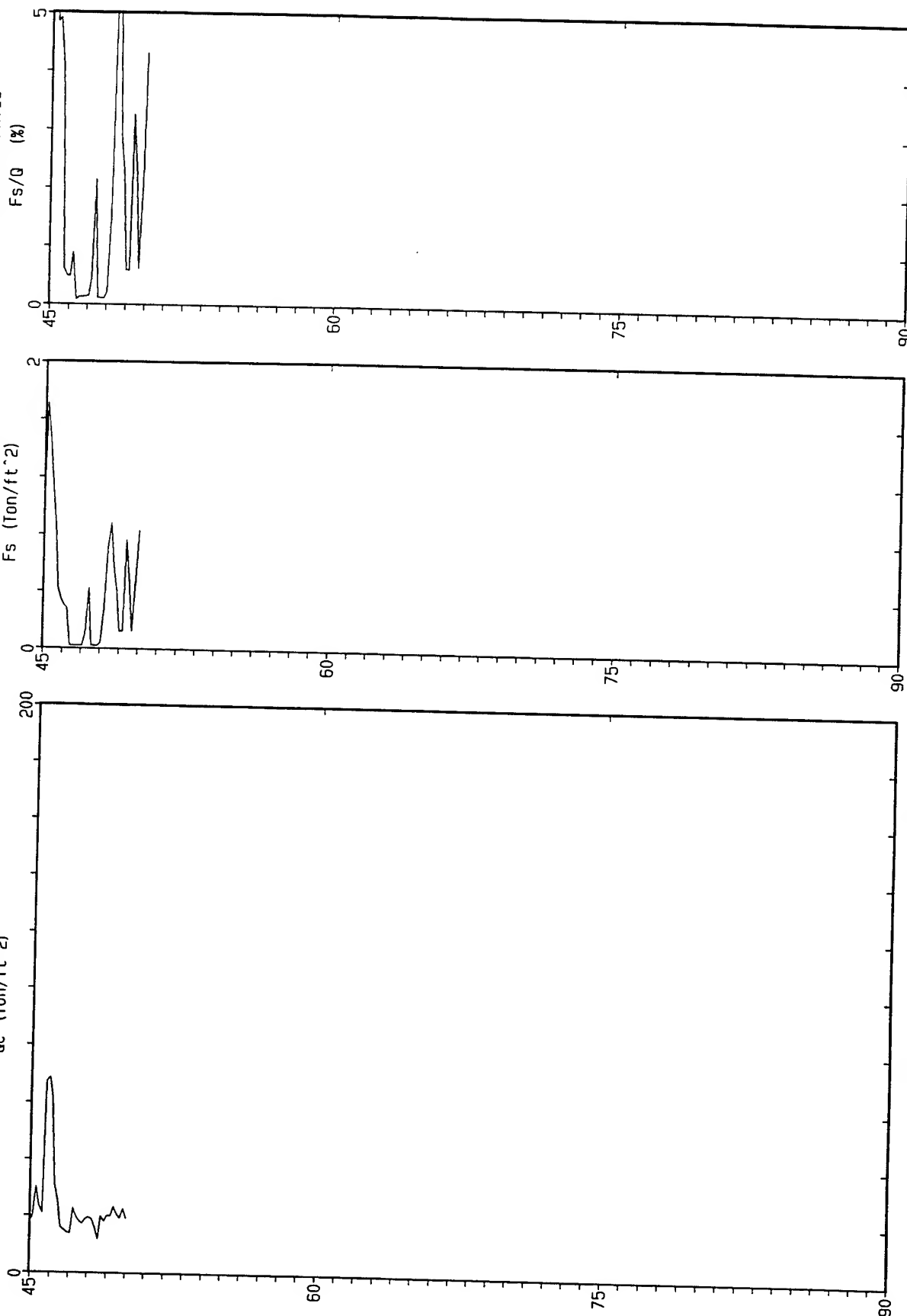
SOUNDING NO. : CPT-21 Pg 2 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-08-92

Location : CPT-21

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 9.7

Tot. Unit Wt. (avg) : 100 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	80.32	0.21	0.27	0.02	sand to silty sand	>90	>48	19	UNDEFINED
0.50	1.64	92.88	0.26	0.28	0.06	sand	>90	>48	18	UNDEFINED
0.75	2.46	202.40	0.15	0.07	0.10	gravelly sand to sand	>90	>48	32	UNDEFINED
1.00	3.28	125.12	0.12	0.09	0.14	sand	>90	>48	24	UNDEFINED
1.25	4.10	75.42	0.02	0.03	0.18	sand	80-90	46-48	14	UNDEFINED
1.50	4.92	62.34	0.05	0.09	0.23	sand to silty sand	70-80	44-46	15	UNDEFINED
1.75	5.74	73.44	0.03	0.04	0.27	sand	70-80	44-46	14	UNDEFINED
2.00	6.56	65.22	0.12	0.18	0.31	sand to silty sand	70-80	44-46	16	UNDEFINED
2.25	7.38	61.20	0.10	0.17	0.35	sand to silty sand	60-70	42-44	15	UNDEFINED
2.50	8.20	65.18	0.18	0.28	0.39	sand to silty sand	60-70	42-44	16	UNDEFINED
2.75	9.02	72.22	0.07	0.09	0.43	sand to silty sand	60-70	42-44	17	UNDEFINED
3.00	9.84	90.24	0.11	0.12	0.47	sand	70-80	42-44	17	UNDEFINED
3.25	10.66	105.66	0.17	0.16	0.51	sand	70-80	44-46	20	UNDEFINED
3.50	11.48	106.00	0.17	0.16	0.55	sand	70-80	42-44	20	UNDEFINED
3.75	12.30	110.42	0.15	0.14	0.59	sand	70-80	42-44	21	UNDEFINED
4.00	13.12	115.28	0.08	0.07	0.64	sand	70-80	42-44	22	UNDEFINED
4.25	13.94	124.66	0.10	0.08	0.68	sand	70-80	42-44	24	UNDEFINED
4.50	14.76	123.24	0.11	0.09	0.72	sand	70-80	42-44	24	UNDEFINED
4.75	15.58	122.50	0.02	0.02	0.76	sand	70-80	42-44	23	UNDEFINED
5.00	16.40	128.26	0.02	0.02	0.80	sand	70-80	42-44	25	UNDEFINED
5.25	17.22	153.08	0.10	0.07	0.84	sand	80-90	42-44	29	UNDEFINED
5.50	18.04	161.46	0.17	0.11	0.88	sand	80-90	42-44	31	UNDEFINED
5.75	18.86	147.82	0.08	0.06	0.92	sand	70-80	42-44	28	UNDEFINED
6.00	19.69	139.36	0.09	0.07	0.96	sand	70-80	42-44	27	UNDEFINED
6.25	20.51	141.14	0.03	0.02	1.00	sand	70-80	42-44	27	UNDEFINED
6.50	21.33	139.36	0.03	0.02	1.05	sand	70-80	42-44	27	UNDEFINED
6.75	22.15	138.94	0.02	0.01	1.09	sand	70-80	42-44	27	UNDEFINED
7.00	22.97	131.70	0.02	0.02	1.13	sand	70-80	40-42	25	UNDEFINED
7.25	23.79	89.44	0.59	0.66	1.17	sand to silty sand	60-70	38-40	21	UNDEFINED
7.50	24.61	118.82	0.84	0.71	1.21	sand	60-70	40-42	23	UNDEFINED
7.75	25.43	172.00	0.66	0.38	1.25	sand	70-80	42-44	33	UNDEFINED
8.00	26.25	135.50	0.79	0.59	1.29	sand	70-80	40-42	26	UNDEFINED
8.25	27.07	98.58	0.94	0.96	1.33	sand to silty sand	60-70	38-40	24	UNDEFINED
8.50	27.89	52.28	1.23	2.35	1.37	sandy silt to clayey silt	UNDFND	UNDFD	20	2.03
8.75	28.71	63.50	1.24	1.96	1.41	silty sand to sandy silt	40-50	36-38	20	UNDEFINED
9.00	29.53	129.16	1.48	1.15	1.46	sand to silty sand	60-70	40-42	31	UNDEFINED
9.25	30.35	128.26	2.53	1.97	1.50	silty sand to sandy silt	60-70	40-42	41	UNDEFINED
9.50	31.17	213.12	1.20	0.56	1.54	sand	80-90	42-44	41	UNDEFINED

Dr - All sands (Jamolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	264.40	0.43	0.16	1.58	gravelly sand to sand	80-90	42-44	42	UNDEFINED
10.00	32.81	96.14	0.63	0.66	1.60	sand to silty sand	50-60	38-40	23	UNDEFINED
10.25	33.63	129.52	0.92	0.71	1.62	sand	60-70	40-42	25	UNDEFINED
10.50	34.45	73.62	1.26	1.71	1.63	silty sand to sandy silt	50-60	36-38	24	UNDEFINED
10.75	35.27	62.62	1.15	1.83	1.65	silty sand to sandy silt	40-50	36-38	20	UNDEFINED
11.00	36.09	53.70	0.68	1.26	1.66	silty sand to sandy silt	40-50	34-36	17	UNDEFINED
11.25	36.91	55.08	0.97	1.76	1.68	silty sand to sandy silt	40-50	34-36	18	UNDEFINED
11.50	37.73	43.46	1.15	2.65	1.69	sandy silt to clayey silt	UNDFND	UNDFD	17	1.66
11.75	38.55	32.14	1.72	5.36	1.71	clay	UNDFND	UNDFD	31	1.20
12.00	39.37	25.52	1.05	4.13	1.72	silty clay to clay	UNDFND	UNDFD	16	.94
12.25	40.19	20.60	0.86	4.17	1.74	silty clay to clay	UNDFND	UNDFD	13	.74
12.50	41.01	18.44	0.45	2.42	1.76	clayey silt to silty clay	UNDFND	UNDFD	9	.65
12.75	41.83	18.14	0.54	3.00	1.77	clayey silt to silty clay	UNDFND	UNDFD	9	.64
13.00	42.65	17.02	0.26	1.52	1.79	sandy silt to clayey silt	UNDFND	UNDFD	7	.59
13.25	43.47	14.80	0.07	0.49	1.80	sandy silt to clayey silt	UNDFND	UNDFD	6	.50
13.50	44.29	20.84	0.63	3.03	1.82	clayey silt to silty clay	UNDFND	UNDFD	10	.74
13.75	45.11	20.48	0.64	3.13	1.83	clayey silt to silty clay	UNDFND	UNDFD	10	.72
14.00	45.93	42.14	0.85	2.01	1.85	sandy silt to clayey silt	UNDFND	UNDFD	16	1.59
14.25	46.75	29.80	0.13	0.43	1.86	silty sand to sandy silt	<40	30-32	10	UNDEFINED
14.50	47.57	17.70	0.12	0.66	1.88	sandy silt to clayey silt	UNDFND	UNDFD	7	.61
14.75	48.39	18.22	0.21	1.16	1.89	sandy silt to clayey silt	UNDFND	UNDFD	7	.63
15.00	49.21	18.06	0.42	2.33	1.91	clayey silt to silty clay	UNDFND	UNDFD	9	.62
15.25	50.03	21.06	0.53	2.52	1.93	clayey silt to silty clay	UNDFND	UNDFD	10	.74

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-09-92

DEPTH TO WATER : 24.11 FT BLS

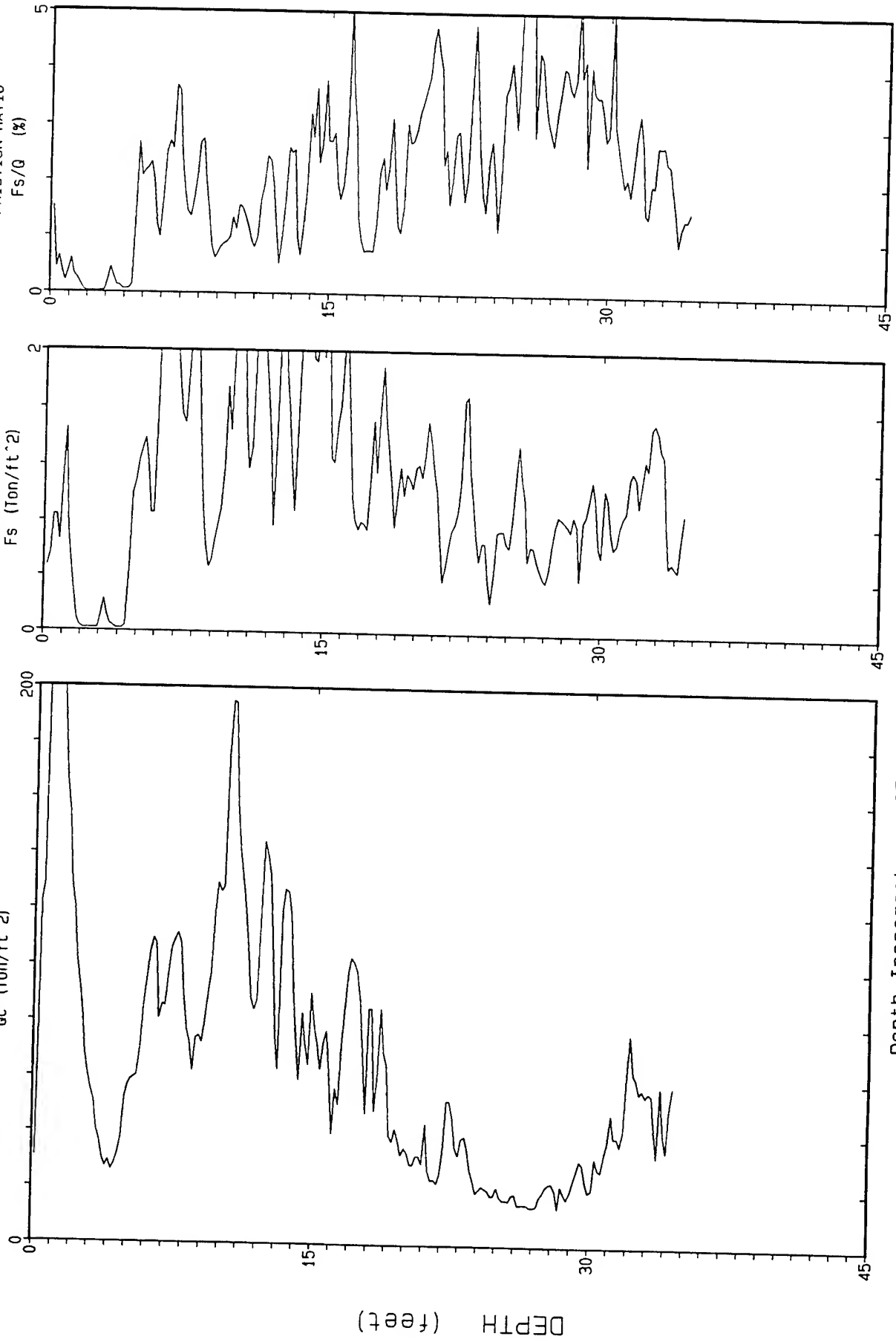
SOUNDING NO. : CPT-22 Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 34.45 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-09-92

Location : CPT-22

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.35

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	165.04	0.67	0.41	0.02					
0.50	1.64	220.90	0.82	0.37	0.07	sand	>90	>48	32	UNDEFINED
0.75	2.46	120.06	0.04	0.03	0.11	sand	>90	>48	42	UNDEFINED
1.00	3.28	63.70	0.08	0.13	0.16	sand	>90	>48	23	UNDEFINED
1.25	4.10	32.66	0.05	0.15	0.20	sand to silty sand	80-90	46-48	15	UNDEFINED
1.50	4.92	35.00	0.52	1.49	0.25	silty sand to sandy silt	50-60	42-44	10	UNDEFINED
1.75	5.74	61.12	1.20	1.97	0.29	silty sand to sandy silt	50-60	42-44	11	UNDEFINED
2.00	6.56	100.66	2.18	2.17	0.34	silty sand to sandy silt	70-80	44-46	20	UNDEFINED
2.25	7.38	91.26	2.31	2.54	0.38	silty sand to sandy silt	80-90	44-46	32	UNDEFINED
2.50	8.20	99.06	2.02	2.04	0.43	silty sand to sandy silt	70-80	44-46	29	UNDEFINED
2.75	9.02	71.22	0.79	1.11	0.47	silty sand to sandy silt	70-80	44-46	32	UNDEFINED
3.00	9.84	103.04	1.05	1.02	0.52	sand to silty sand	60-70	42-44	17	UNDEFINED
3.25	10.66	163.88	2.24	1.37	0.56	sand to silty sand	70-80	44-46	25	UNDEFINED
3.50	11.48	132.00	1.62	1.23	0.61	sand to silty sand	80-90	44-46	39	UNDEFINED
3.75	12.30	104.80	1.61	1.54	0.65	sand to silty sand	80-90	44-46	32	UNDEFINED
4.00	13.12	102.68	1.97	1.92	0.70	sand to silty sand	70-80	42-44	25	UNDEFINED
4.25	13.94	115.92	1.73	1.50	0.74	silty sand to sandy silt	70-80	42-44	33	UNDEFINED
4.50	14.76	70.46	2.11	2.99	0.79	sand to silty sand	70-80	42-44	28	UNDEFINED
4.75	15.58	75.40	1.84	2.44	0.83	sandy silt to clayey silt	UNDFND	UNDFD	27	2.78
5.00	16.40	57.10	1.74	3.05	0.88	sandy silt to clayey silt	UNDFND	UNDFD	29	2.98
5.25	17.22	91.72	0.83	0.90	0.92	sandy silt to clayey silt	UNDFND	UNDFD	22	2.24
5.50	18.04	77.68	1.23	1.59	0.97	sand to silty sand	60-70	40-42	22	UNDEFINED
5.75	18.86	69.56	1.31	1.88	1.01	silty sand to sandy silt	50-60	40-42	25	UNDEFINED
6.00	19.69	44.00	1.10	2.49	1.06	silty sand to sandy silt	50-60	38-40	22	UNDEFINED
6.25	20.51	31.66	1.18	3.72	1.11	sandy silt to clayey silt	UNDFND	UNDFD	17	1.71
6.50	21.33	32.78	1.16	3.54	1.15	clayey silt to silty clay	UNDFND	UNDFD	15	1.22
6.75	22.15	25.74	0.61	2.36	1.20	clayey silt to silty clay	UNDFND	UNDFD	16	1.26
7.00	22.97	43.58	1.30	2.98	1.24	sandy silt to clayey silt	UNDFND	UNDFD	10	.98
7.25	23.79	32.84	0.70	2.14	1.29	sandy silt to clayey silt	UNDFND	UNDFD	17	1.69
7.50	24.61	20.22	0.51	2.52	1.33	sandy silt to clayey silt	UNDFND	UNDFD	13	1.26
7.75	25.43	18.32	0.80	4.36	1.35	clayey silt to silty clay	UNDFND	UNDFD	10	.75
8.00	26.25	16.92	0.93	5.47	1.37	clay	UNDFND	UNDFD	18	.67
8.25	27.07	14.68	0.48	3.30	1.39	clay	UNDFND	UNDFD	16	.62
8.50	27.89	19.16	0.72	3.76	1.41	silty clay to clay	UNDFND	UNDFD	9	.52
8.75	28.71	19.60	0.80	4.09	1.43	silty clay to clay	UNDFND	UNDFD	12	.70
9.00	29.53	23.96	0.83	3.48	1.45	silty clay to clay	UNDFND	UNDFD	13	.72
9.25	30.35	25.10	0.84	3.36	1.46	clayey silt to silty clay	UNDFND	UNDFD	11	.89
9.50	31.17	34.88	0.74	2.11	1.48	clayey silt to silty clay	UNDFND	UNDFD	12	.93
						sandy silt to clayey silt	UNDFND	UNDFD	13	1.32

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

Contractor : TERRA TECH SW Location : BLDG. 870

Page No. 2

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	44.02	1.05	2.39	1.50	sandy silt to clayey silt	UNDFND	UNDFD	17	1.1
10.00	32.81	62.70	1.31	2.09	1.52	silty sand to sandy silt	40-50	36-38	20	UNDEFI
10.25	33.63	48.14	1.08	2.24	1.54	sandy silt to clayey silt	UNDFND	UNDFD	18	1.3
10.50	34.45	48.28	0.61	1.27	1.56	silty sand to sandy silt	<40	34-36	15	UNDEFIN

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-10-92

SOUNDING NO. : CPT-23 Pg 1 / 1

LOCATION : BLDG. 870

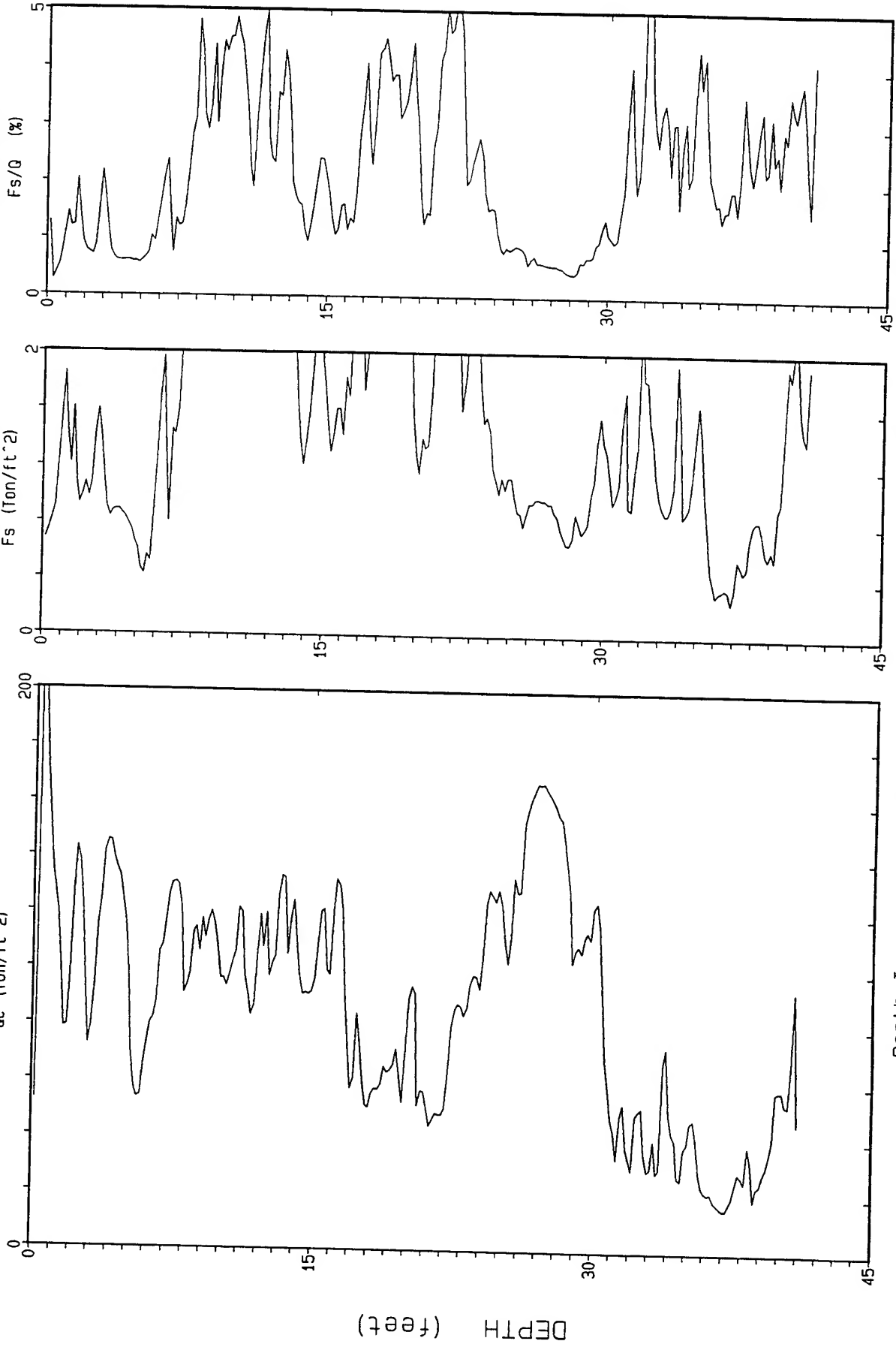
DEPTH TO WATER : 28.21 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 41.01 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-10-92

Location : CPT-23

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 8.6

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	170.94	0.88	0.51	0.02	sand	>90	>48	33	UNDEFINED
0.50	1.64	112.36	1.54	1.37	0.07	sand to silty sand	>90	>48	27	UNDEFINED
0.75	2.46	116.98	1.02	0.87	0.11	sand to silty sand	>90	>48	28	UNDEFINED
1.00	3.28	93.14	1.33	1.43	0.16	sand to silty sand	>90	>48	22	UNDEFINED
1.25	4.10	134.64	0.88	0.66	0.20	sand	>90	>48	26	UNDEFINED
1.50	4.92	129.76	0.78	0.60	0.25	sand	>90	>48	25	UNDEFINED
1.75	5.74	66.92	0.52	0.77	0.29	sand to silty sand	70-80	44-46	16	UNDEFINED
2.00	6.56	77.84	1.42	1.82	0.34	silty sand to sandy silt	70-80	44-46	25	UNDEFINED
2.25	7.38	117.44	1.48	1.26	0.38	sand to silty sand	80-90	44-46	28	UNDEFINED
2.50	8.20	113.44	3.77	3.32	0.43	sandy silt to clayey silt	UNDFND	UNDFD	43	3.0
2.75	9.02	110.00	3.71	3.37	0.47	sandy silt to clayey silt	UNDFND	UNDFD	42	3.77
3.00	9.84	114.44	4.96	4.34	0.52	very stiff fine grained (*)	UNDFND	UNDFD	>50	UNDEFINED
3.25	10.66	97.60	4.09	4.19	0.56	clayey silt to silty clay	UNDFND	UNDFD	47	3.0
3.50	11.48	107.46	3.32	3.09	0.61	sandy silt to clayey silt	UNDFND	UNDFD	41	3.0
3.75	12.30	100.34	3.16	3.15	0.65	sandy silt to clayey silt	UNDFND	UNDFD	38	3.43
4.00	13.12	110.20	3.67	3.33	0.70	sandy silt to clayey silt	UNDFND	UNDFD	42	3.0
4.25	13.94	122.70	1.78	1.45	0.74	sand to silty sand	70-80	42-44	29	UNDEFINED
4.50	14.76	96.62	1.86	1.92	0.79	silty sand to sandy silt	60-70	40-42	31	UNDEFINED
4.75	15.58	107.96	1.62	1.50	0.83	sand to silty sand	70-80	42-44	26	UNDEFINED
5.00	16.40	116.18	1.64	1.41	0.88	sand to silty sand	70-80	42-44	28	UNDEFINED
5.25	17.22	81.12	2.30	2.83	0.92	sandy silt to clayey silt	UNDFND	UNDFD	31	2.76
5.50	18.04	64.40	2.30	3.58	0.97	clayey silt to silty clay	UNDFND	UNDFD	31	2.18
5.75	18.86	59.18	2.23	3.77	1.01	clayey silt to silty clay	UNDFND	UNDFD	28	2.0
6.00	19.69	65.66	2.46	3.74	1.06	clayey silt to silty clay	UNDFND	UNDFD	31	2.0
6.25	20.51	80.30	1.35	1.69	1.11	silty sand to sandy silt	50-60	38-40	26	UNDEFINED
6.50	21.33	52.14	1.98	3.80	1.15	clayey silt to silty clay	UNDFND	UNDFD	25	1.0
6.75	22.15	48.78	2.37	4.86	1.20	silty clay to clay	UNDFND	UNDFD	31	1.0
7.00	22.97	81.20	1.98	2.44	1.24	silty sand to sandy silt	50-60	38-40	26	UNDEFINED
7.25	23.79	92.68	1.88	2.03	1.29	silty sand to sandy silt	60-70	38-40	30	UNDEFINED
7.50	24.61	115.72	1.18	1.02	1.33	sand to silty sand	60-70	40-42	28	UNDEFINED
7.75	25.43	118.34	1.04	0.88	1.38	sand to silty sand	60-70	40-42	28	UNDEFINED
8.00	26.25	131.12	0.89	0.68	1.42	sand	60-70	40-42	25	UNDEFINED
8.25	27.07	163.80	0.97	0.59	1.47	sand	70-80	40-42	31	UNDEFINED
8.50	27.89	163.30	0.84	0.51	1.51	sand	70-80	40-42	31	UNDEFINED
8.75	28.71	144.82	0.74	0.51	1.55	sand	70-80	40-42	28	UNDEFINED
9.00	29.53	107.80	0.89	0.83	1.57	sand to silty sand	60-70	38-40	26	UNDEFINED
9.25	30.35	117.96	1.36	1.15	1.59	sand to silty sand	60-70	38-40	28	UNDEFINED
9.50	31.17	61.72	1.26	2.03	1.61	silty sand to sandy silt	40-50	36-38	20	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 29

(*) overconsolidated or cemented

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	41.16	1.34	3.26	1.63	clayey silt to silty clay	UNDFND	UNDFD	20	1.3
10.00	32.81	43.18	1.54	3.58	1.65	clayey silt to silty clay	UNDFND	UNDFD	21	1.4
10.25	33.63	31.50	0.92	2.93	1.67	clayey silt to silty clay	UNDFND	UNDFD	15	1.0
10.50	34.45	54.56	1.26	2.31	1.69	sandy silt to clayey silt	UNDFND	UNDFD	21	1.8
10.75	35.27	35.16	1.30	3.71	1.71	clayey silt to silty clay	UNDFND	UNDFD	17	1.1
11.00	36.09	32.58	0.60	1.84	1.73	sandy silt to clayey silt	UNDFND	UNDFD	12	1.0
11.25	36.91	19.18	0.32	1.69	1.75	sandy silt to clayey silt	UNDFND	UNDFD	7	.5
11.50	37.73	18.72	0.48	2.55	1.77	clayey silt to silty clay	UNDFND	UNDFD	9	.5
11.75	38.55	30.60	0.79	2.58	1.79	sandy silt to clayey silt	UNDFND	UNDFD	12	.9
12.00	39.37	25.22	0.66	2.60	1.81	clayey silt to silty clay	UNDFND	UNDFD	12	.7
12.25	40.19	49.94	1.65	3.30	1.83	clayey silt to silty clay	UNDFND	UNDFD	24	1.6
12.50	41.01	62.62	1.68	2.68	1.85	sandy silt to clayey silt	UNDFND	UNDFD	24	2.0

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 29

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

DATE : 08-10-92

DEPTH TO WATER : 24.93 FT BLS

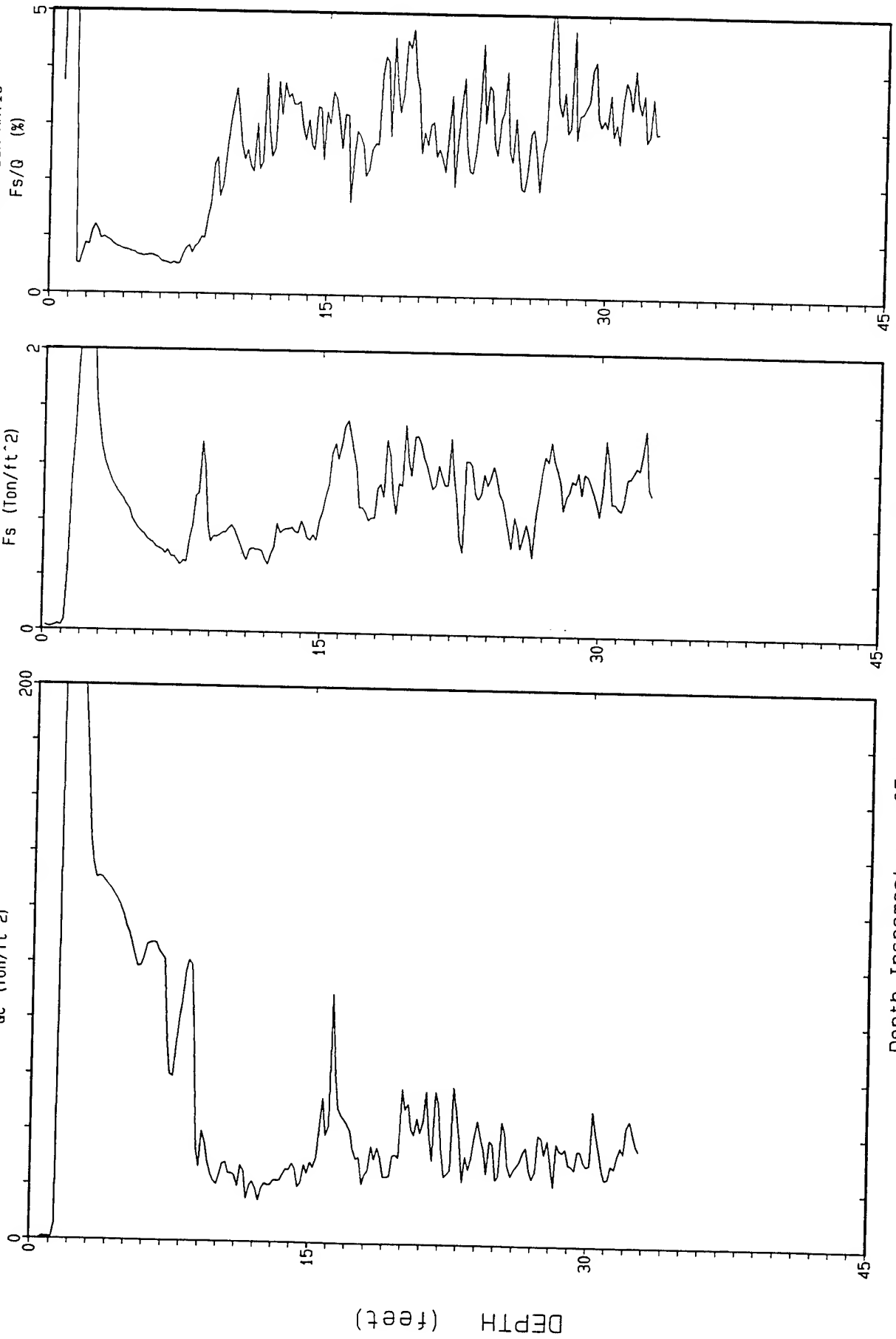
SOUNDING NO. : CPT-24 Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-10-92

Location : CPT-24

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.6

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	0.28	0.03	10.00	0.02	undefined	UNDFND	UNDFD	UDF	UNDEFINED
0.50	1.64	96.44	0.61	0.63	0.07	sand to silty sand	>90	>48	23	UNDEFINED
0.75	2.46	247.00	2.32	0.94	0.11	sand	>90	>48	47	UNDEFINED
1.00	3.28	155.18	1.55	1.00	0.16	sand	>90	>48	30	UNDEFINED
1.25	4.10	129.02	1.06	0.82	0.20	sand	>90	>48	25	UNDEFINED
1.50	4.92	119.70	0.86	0.72	0.25	sand	>90	46-48	23	UNDEFINED
1.75	5.74	103.58	0.70	0.67	0.29	sand to silty sand	80-90	46-48	25	UNDEFINED
2.00	6.56	106.04	0.60	0.57	0.34	sand	80-90	44-46	20	UNDEFINED
2.25	7.38	88.18	0.53	0.60	0.38	sand to silty sand	70-80	44-46	21	UNDEFINED
2.50	8.20	78.22	0.68	0.87	0.43	sand to silty sand	70-80	42-44	19	UNDEFINED
2.75	9.02	66.98	0.99	1.48	0.47	silty sand to sandy silt	60-70	42-44	21	UNDEFINED
3.00	9.84	29.86	0.70	2.36	0.52	sandy silt to clayey silt	UNDFND	UNDFD	11	1.12
3.25	10.66	25.10	0.71	2.84	0.56	clayey silt to silty clay	UNDFND	UNDFD	12	.94
3.50	11.48	24.18	0.58	2.39	0.61	sandy silt to clayey silt	UNDFND	UNDFD	9	.90
3.75	12.30	18.18	0.55	3.05	0.65	clayey silt to silty clay	UNDFND	UNDFD	9	.67
4.00	13.12	20.74	0.72	3.49	0.70	clayey silt to silty clay	UNDFND	UNDFD	10	.77
4.25	13.94	24.16	0.75	3.12	0.74	clayey silt to silty clay	UNDFND	UNDFD	12	.90
4.50	14.76	24.88	0.70	2.81	0.79	clayey silt to silty clay	UNDFND	UNDFD	12	.92
4.75	15.58	30.48	1.01	3.30	0.83	clayey silt to silty clay	UNDFND	UNDFD	15	1.14
5.00	16.40	56.70	1.39	2.46	0.88	sandy silt to clayey silt	UNDFND	UNDFD	22	2.14
5.25	17.22	44.54	1.15	2.58	0.92	sandy silt to clayey silt	UNDFND	UNDFD	17	1.67
5.50	18.04	28.30	0.89	3.13	0.97	clayey silt to silty clay	UNDFND	UNDFD	14	1.05
5.75	18.86	31.40	1.15	3.67	1.01	clayey silt to silty clay	UNDFND	UNDFD	15	1.16
6.00	19.69	27.24	1.16	4.24	1.06	silty clay to clay	UNDFND	UNDFD	17	1.00
6.25	20.51	45.52	1.32	2.90	1.11	sandy silt to clayey silt	UNDFND	UNDFD	17	1.70
6.50	21.33	44.86	1.14	2.54	1.15	sandy silt to clayey silt	UNDFND	UNDFD	17	1.68
6.75	22.15	41.88	1.17	2.80	1.20	sandy silt to clayey silt	UNDFND	UNDFD	16	1.56
7.00	22.97	36.38	0.95	2.61	1.24	sandy silt to clayey silt	UNDFND	UNDFD	14	1.35
7.25	23.79	30.26	1.08	3.57	1.29	clayey silt to silty clay	UNDFND	UNDFD	14	1.11
7.50	24.61	36.64	1.12	3.06	1.33	clayey silt to silty clay	UNDFND	UNDFD	18	1.35
7.75	25.43	33.42	0.82	2.45	1.37	sandy silt to clayey silt	UNDFND	UNDFD	13	1.23
8.00	26.25	30.06	0.73	2.43	1.39	sandy silt to clayey silt	UNDFND	UNDFD	12	1.10
8.25	27.07	30.08	0.98	3.26	1.41	clayey silt to silty clay	UNDFND	UNDFD	14	1.10
8.50	27.89	35.26	1.24	3.52	1.43	clayey silt to silty clay	UNDFND	UNDFD	17	1.29
8.75	28.71	31.28	1.04	3.31	1.45	clayey silt to silty clay	UNDFND	UNDFD	15	1.14
9.00	29.53	30.94	1.12	3.63	1.47	clayey silt to silty clay	UNDFND	UNDFD	15	1.12
9.25	30.35	34.26	1.07	3.12	1.49	clayey silt to silty clay	UNDFND	UNDFD	16	1.25
9.50	31.17	30.30	1.00	3.31	1.51	clayey silt to silty clay	UNDFND	UNDFD	15	1.10

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	31.84	1.13	3.56	1.53	clayey silt to silty clay	UNDFND	UNDFD	15	1
10.00	32.81	40.32	1.22	3.03	1.55	sandy silt to clayey silt	UNDFND	UNDFD	15	1

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-10-92

Location : CPT-25

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 10

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	53.90	0.47	0.88	0.02	sand to silty sand	>90	>48	13	UNDEFINED
0.50	1.64	40.80	0.79	1.93	0.07	sandy silt to clayey silt	UNDFND	UNDFD	16	1.62
0.75	2.46	127.48	1.19	0.94	0.11	sand to silty sand	>90	>48	31	UNDEFINED
1.00	3.28	64.50	0.65	1.00	0.16	sand to silty sand	80-90	46-48	15	UNDEFINED
1.25	4.10	35.90	0.30	0.85	0.20	silty sand to sandy silt	60-70	42-44	11	UNDEFINED
1.50	4.92	31.66	0.35	1.10	0.25	silty sand to sandy silt	50-60	42-44	10	UNDEFINED
1.75	5.74	32.16	0.38	1.19	0.29	silty sand to sandy silt	50-60	40-42	10	UNDEFINED
2.00	6.56	54.68	0.85	1.55	0.34	silty sand to sandy silt	60-70	42-44	17	UNDEFINED
2.25	7.38	74.48	1.53	2.05	0.38	silty sand to sandy silt	70-80	42-44	24	UNDEFINED
2.50	8.20	97.38	2.02	2.07	0.43	silty sand to sandy silt	70-80	44-46	31	UNDEFINED
2.75	9.02	116.30	2.59	2.23	0.47	silty sand to sandy silt	80-90	44-46	37	UNDEFINED
3.00	9.84	83.18	2.00	2.40	0.52	silty sand to sandy silt	70-80	42-44	27	UNDEFINED
3.25	10.66	58.54	1.28	2.18	0.56	sandy silt to clayey silt	UNDFND	UNDFD	22	2.31
3.50	11.48	59.54	1.41	2.36	0.61	sandy silt to clayey silt	UNDFND	UNDFD	23	2.35
3.75	12.30	75.88	1.23	1.62	0.65	silty sand to sandy silt	60-70	40-42	24	UNDEFINED
4.00	13.12	108.18	1.61	1.49	0.70	sand to silty sand	70-80	42-44	26	UNDEFINED
4.25	13.94	86.22	1.61	1.86	0.74	silty sand to sandy silt	60-70	40-42	28	UNDEFINED
4.50	14.76	53.82	1.13	2.11	0.79	sandy silt to clayey silt	UNDFND	UNDFD	21	2.12
4.75	15.58	37.50	0.92	2.45	0.83	sandy silt to clayey silt	UNDFND	UNDFD	14	1.46
5.00	16.40	54.14	1.21	2.24	0.88	sandy silt to clayey silt	UNDFND	UNDFD	21	2.13
5.25	17.22	56.46	1.36	2.41	0.92	sandy silt to clayey silt	UNDFND	UNDFD	22	2.22
5.50	18.04	49.52	1.19	2.40	0.97	sandy silt to clayey silt	UNDFND	UNDFD	19	1.94
5.75	18.86	33.64	1.08	3.21	1.01	clayey silt to silty clay	UNDFND	UNDFD	16	1.30
6.00	19.69	28.56	0.94	3.28	1.06	clayey silt to silty clay	UNDFND	UNDFD	14	1.10
6.25	20.51	36.06	1.05	2.91	1.11	sandy silt to clayey silt	UNDFND	UNDFD	14	1.39
6.50	21.33	38.42	0.92	2.40	1.15	sandy silt to clayey silt	UNDFND	UNDFD	15	1.49
6.75	22.15	26.92	0.90	3.35	1.20	clayey silt to silty clay	UNDFND	UNDFD	13	1.02
7.00	22.97	20.78	0.92	4.43	1.24	clay	UNDFND	UNDFD	20	.78
7.25	23.79	23.96	0.91	3.81	1.29	silty clay to clay	UNDFND	UNDFD	15	.90
7.50	24.61	27.84	1.04	3.72	1.33	clayey silt to silty clay	UNDFND	UNDFD	13	1.06
7.75	25.43	22.28	0.82	3.68	1.38	silty clay to clay	UNDFND	UNDFD	14	.83
8.00	26.25	27.86	0.93	3.34	1.42	clayey silt to silty clay	UNDFND	UNDFD	13	1.05
8.25	27.07	25.84	1.02	3.96	1.47	silty clay to clay	UNDFND	UNDFD	17	.97
8.50	27.89	41.30	1.27	3.08	1.51	sandy silt to clayey silt	UNDFND	UNDFD	16	1.59
8.75	28.71	35.60	1.34	3.75	1.56	clayey silt to silty clay	UNDFND	UNDFD	17	1.36
9.00	29.53	23.68	0.91	3.86	1.60	silty clay to clay	UNDFND	UNDFD	15	.88
9.25	30.35	31.46	1.25	3.96	1.65	clayey silt to silty clay	UNDFND	UNDFD	15	1.19
9.50	31.17	33.56	1.20	3.56	1.69	clayey silt to silty clay	UNDFND	UNDFD	16	1.27

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	S ts
9.75	31.99	23.48	0.95	4.04	1.74	silty clay to clay	UNDFND	UNDFD	15	
10.00	32.81	29.58	1.12	3.78	1.78	clayey silt to silty clay	UNDFND	UNDFD	14	
10.25	33.63	28.02	0.99	3.54	1.81	clayey silt to silty clay	UNDFND	UNDFD	13	1.0
10.50	34.45	34.30	1.34	3.92	1.83	clayey silt to silty clay	UNDFND	UNDFD	16	
10.75	35.27	32.84	1.32	4.03	1.85	silty clay to clay	UNDFND	UNDFD	21	
11.00	36.09	26.74	0.96	3.60	1.87	clayey silt to silty clay	UNDFND	UNDFD	13	
11.25	36.91	28.50	1.07	3.77	1.89	clayey silt to silty clay	UNDFND	UNDFD	14	1.0
11.50	37.73	34.38	1.35	3.92	1.91	clayey silt to silty clay	UNDFND	UNDFD	16	
11.75	38.55	22.70	0.77	3.41	1.93	clayey silt to silty clay	UNDFND	UNDFD	11	
12.00	39.37	29.08	1.00	3.43	1.95	clayey silt to silty clay	UNDFND	UNDFD	14	1.0
12.25	40.19	30.10	0.91	3.02	1.97	clayey silt to silty clay	UNDFND	UNDFD	14	
12.50	41.01	34.36	1.10	3.21	1.99	clayey silt to silty clay	UNDFND	UNDFD	16	

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

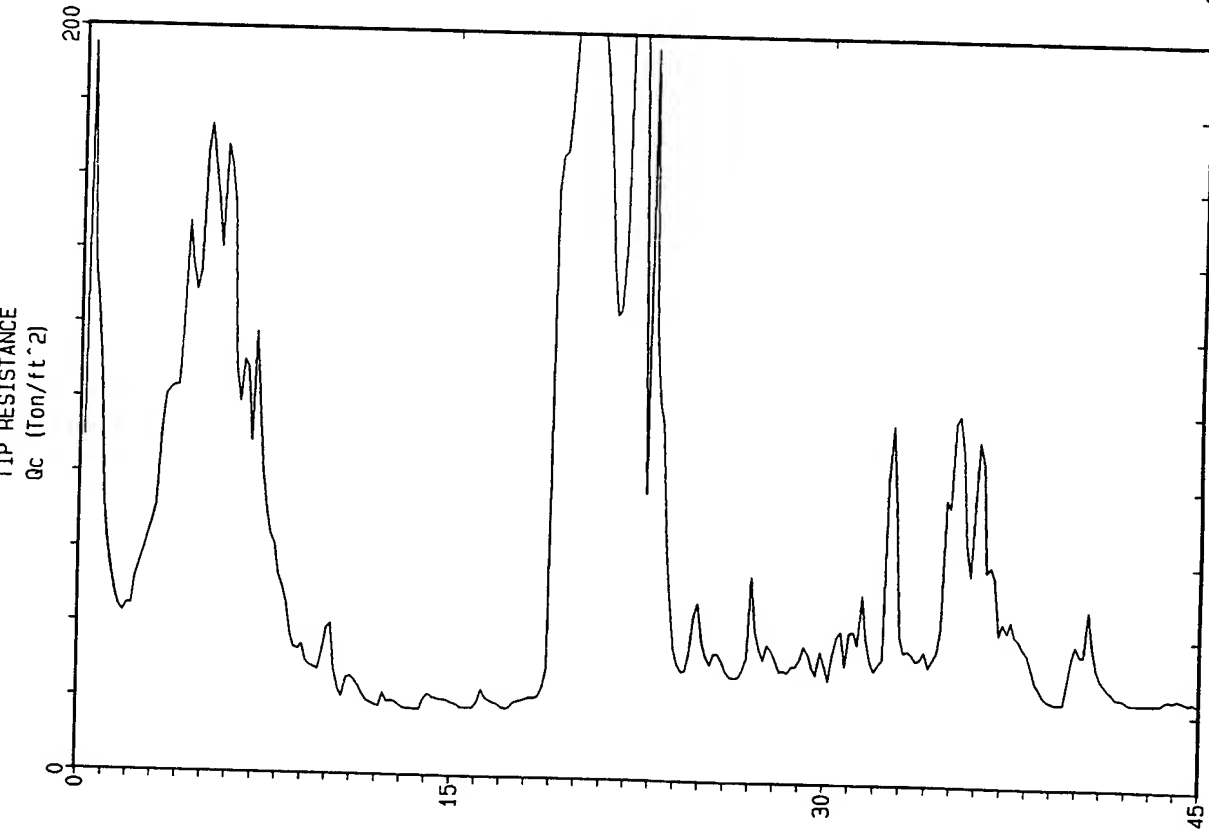
DATE : 08-10-92

DEPTH TO WATER : 12.14 FT BLS

SOUNDING NO. : CPT-26 Pg 1 / 2

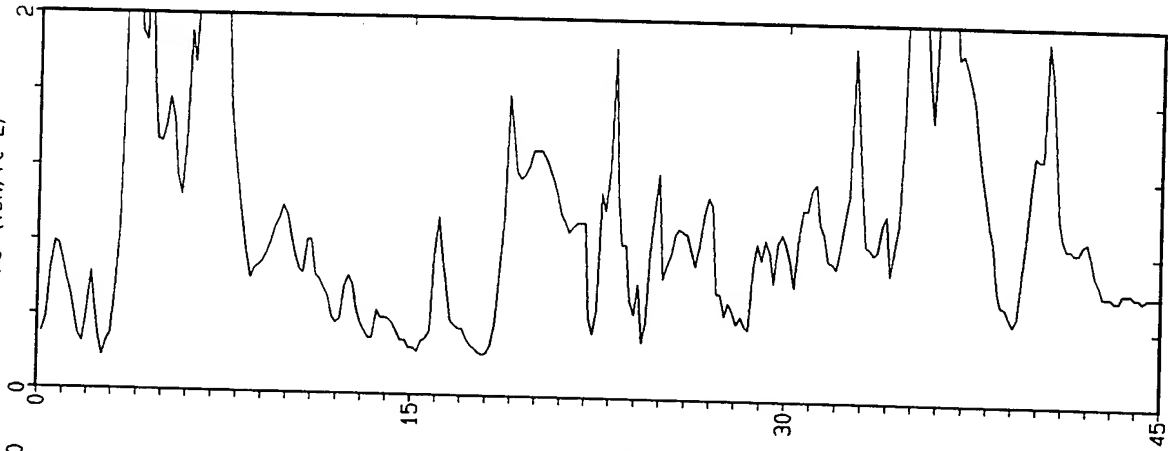
TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

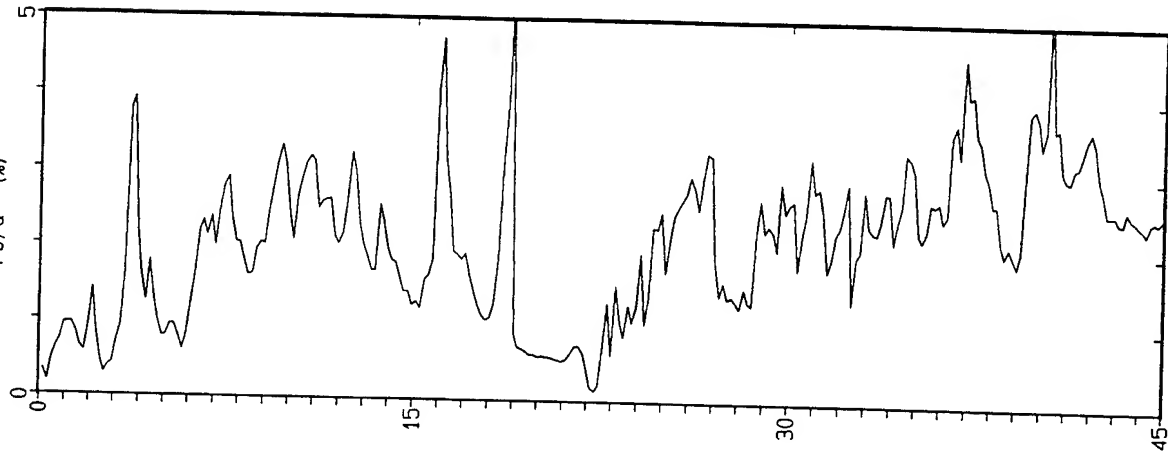


Depth Increment : .05 m

LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/q (%)



Max Depth : 50.03 ft

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW
LOCATION : BLDG. 870

DATE : 08-10-92

DEPTH TO WATER : 12.14 FT BLS

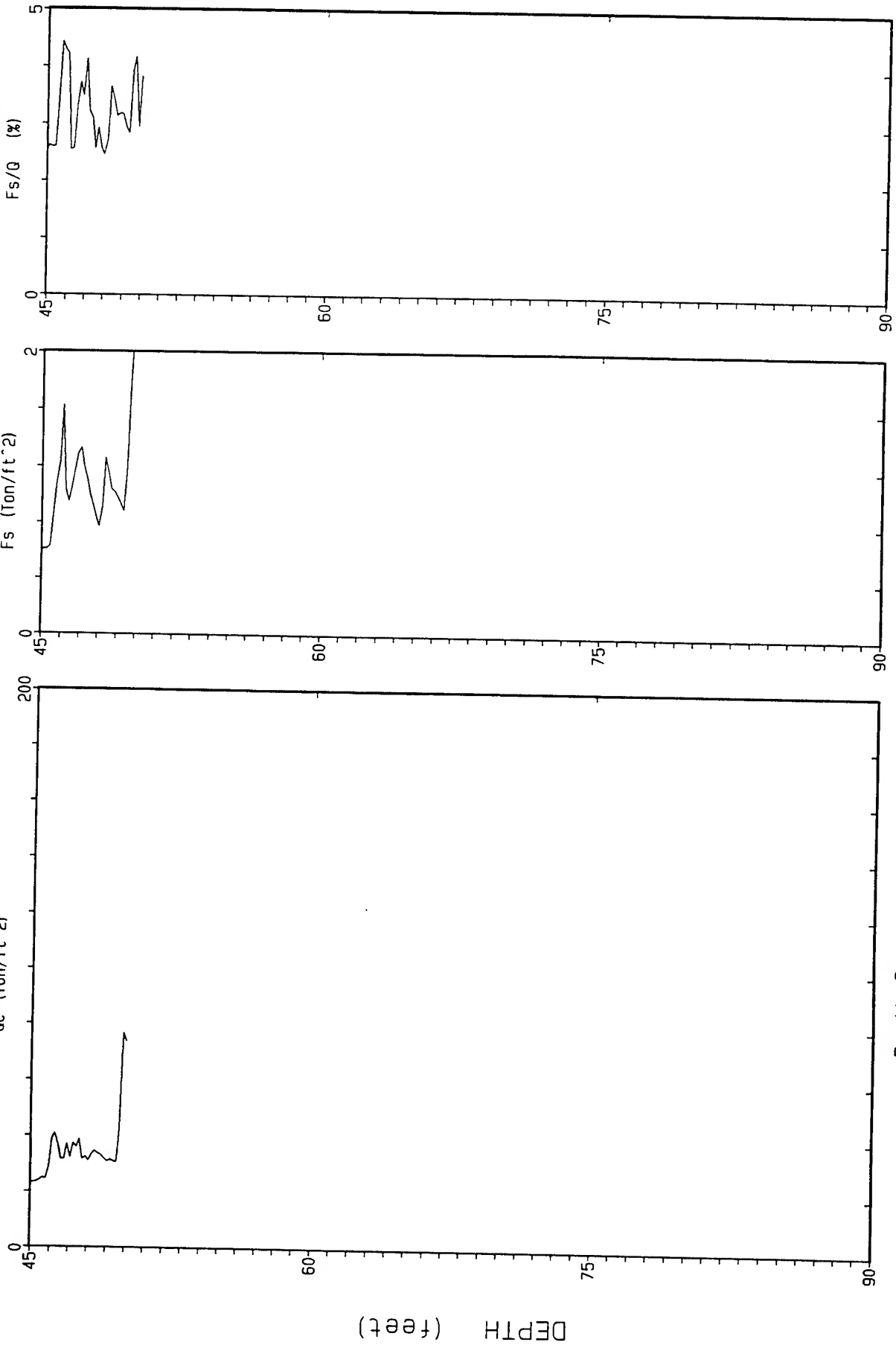
SOUNDING NO. : CPT-26 Pg 2 / 2

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 50.03 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-10-92

Location : CPT-26

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 3.7

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	130.14	0.58	0.44	0.02	sand	>90	>48	25	UNDEFINE
0.50	1.64	55.72	0.50	0.89	0.07	sand to silty sand	80-90	>48	13	UNDEFINE
0.75	2.46	47.86	0.40	0.84	0.11	silty sand to sandy silt	70-80	46-48	15	UNDEFINE
1.00	3.28	70.56	0.42	0.60	0.16	sand to silty sand	80-90	46-48	17	UNDEFINE
1.25	4.10	106.02	2.76	2.60	0.20	silty sand to sandy silt	>90	46-48	34	UNDEFINE
1.50	4.92	142.56	1.72	1.21	0.25	sand to silty sand	>90	>48	34	UNDEFINE
1.75	5.74	159.92	1.32	0.83	0.29	sand	>90	>48	31	UNDEFINE
2.00	6.56	126.62	1.94	1.54	0.34	sand to silty sand	80-90	46-48	30	UNDEFINE
2.25	7.38	98.46	2.29	2.33	0.38	silty sand to sandy silt	70-80	44-46	31	UNDEFINE
2.50	8.20	59.76	1.36	2.28	0.43	sandy silt to clayey silt	UNDFND	UNDFD	23	2.15
2.75	9.02	36.86	0.68	1.84	0.47	sandy silt to clayey silt	UNDFND	UNDFD	14	1.34
3.00	9.84	29.56	0.87	2.95	0.52	clayey silt to silty clay	UNDFND	UNDFD	14	1.07
3.25	10.66	30.10	0.77	2.54	0.56	sandy silt to clayey silt	UNDFND	UNDFD	12	1.05
3.50	11.48	24.36	0.69	2.82	0.61	clayey silt to silty clay	UNDFND	UNDFD	12	.87
3.75	12.30	19.50	0.46	2.34	0.65	clayey silt to silty clay	UNDFND	UNDFD	9	.69
4.00	13.12	19.02	0.48	2.51	0.68	clayey silt to silty clay	UNDFND	UNDFD	9	.67
4.25	13.94	18.22	0.37	2.05	0.70	sandy silt to clayey silt	UNDFND	UNDFD	7	.64
4.50	14.76	20.82	0.34	1.62	0.72	sandy silt to clayey silt	UNDFND	UNDFD	8	.74
4.75	15.58	19.02	0.26	1.39	0.74	sandy silt to clayey silt	UNDFND	UNDFD	7	.67
5.00	16.40	20.16	0.67	3.31	0.76	clayey silt to silty clay	UNDFND	UNDFD	10	.71
5.25	17.22	19.26	0.36	1.87	0.78	sandy silt to clayey silt	UNDFND	UNDFD	7	.67
5.50	18.04	20.12	0.24	1.19	0.80	sandy silt to clayey silt	UNDFND	UNDFD	8	.70
5.75	18.86	23.62	0.78	3.29	0.82	clayey silt to silty clay	UNDFND	UNDFD	11	.83
6.00	19.69	174.38	1.23	0.71	0.84	sand	80-90	44-46	33	UNDEFINED
6.25	20.51	216.28	1.28	0.59	0.86	sand	>90	44-46	41	UNDEFINED
6.50	21.33	178.90	1.01	0.56	0.88	sand	80-90	44-46	34	UNDEFINED
6.75	22.15	162.98	0.83	0.51	0.90	sand	80-90	42-44	31	UNDEFINED
7.00	22.97	174.48	0.82	0.47	0.92	sand	80-90	42-44	33	UNDEFINED
7.25	23.79	86.24	1.02	1.19	0.93	sand to silty sand	60-70	40-42	21	UNDEFINED
7.50	24.61	31.94	0.51	1.60	0.95	sandy silt to clayey silt	UNDFND	UNDFD	12	1.13
7.75	25.43	38.90	0.87	2.23	0.97	sandy silt to clayey silt	UNDFND	UNDFD	15	1.38
8.00	26.25	31.64	0.87	2.75	0.99	sandy silt to clayey silt	UNDFND	UNDFD	12	1.11
8.25	27.07	34.86	0.93	2.67	1.01	sandy silt to clayey silt	UNDFND	UNDFD	13	1.23
8.50	27.89	36.28	0.52	1.42	1.03	silty sand to sandy silt	<40	34-36	12	UNDEFINED
8.75	28.71	30.68	0.47	1.53	1.05	sandy silt to clayey silt	UNDFND	UNDFD	12	1.07
9.00	29.53	33.36	0.77	2.32	1.07	sandy silt to clayey silt	UNDFND	UNDFD	13	1.17
9.25	30.35	31.64	0.78	2.48	1.09	sandy silt to clayey silt	UNDFND	UNDFD	12	1.11
9.50	31.17	38.58	1.04	2.70	1.11	sandy silt to clayey silt	UNDFND	UNDFD	15	1.36

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	38.12	0.81	2.12	1.13	sandy silt to clayey silt	UNDFND	UNDFD	15	1.76
10.00	32.81	63.70	1.26	1.97	1.15	silty sand to sandy silt	50-60	38-40	20	UNDEFIN
10.25	33.63	36.00	0.88	2.44	1.17	sandy silt to clayey silt	UNDFND	UNDFD	14	1.76
10.50	34.45	34.16	0.88	2.57	1.19	sandy silt to clayey silt	UNDFND	UNDFD	13	1.76
10.75	35.27	78.16	2.12	2.72	1.21	sandy silt to clayey silt	UNDFND	UNDFD	30	2.74
11.00	36.09	76.04	1.93	2.54	1.23	sandy silt to clayey silt	UNDFND	UNDFD	29	2.74
11.25	36.91	60.06	2.03	3.38	1.25	sandy silt to clayey silt	UNDFND	UNDFD	23	2.15
11.50	37.73	41.94	1.55	3.69	1.27	clayey silt to silty clay	UNDFND	UNDFD	20	1.76
11.75	38.55	31.92	0.81	2.54	1.29	sandy silt to clayey silt	UNDFND	UNDFD	12	1.76
12.00	39.37	23.26	0.52	2.23	1.31	sandy silt to clayey silt	UNDFND	UNDFD	9	.78
12.25	40.19	32.16	1.20	3.72	1.32	clayey silt to silty clay	UNDFND	UNDFD	15	1.76
12.50	41.01	36.78	1.40	3.81	1.34	clayey silt to silty clay	UNDFND	UNDFD	18	1.76
12.75	41.83	25.82	0.84	3.24	1.36	clayey silt to silty clay	UNDFND	UNDFD	12	.87
13.00	42.65	23.26	0.73	3.13	1.38	clayey silt to silty clay	UNDFND	UNDFD	11	.75
13.25	43.47	23.08	0.59	2.54	1.40	clayey silt to silty clay	UNDFND	UNDFD	11	.75
13.50	44.29	24.32	0.59	2.44	1.42	sandy silt to clayey silt	UNDFND	UNDFD	9	.81
13.75	45.11	23.50	0.59	2.53	1.44	clayey silt to silty clay	UNDFND	UNDFD	11	.75
14.00	45.93	25.14	0.89	3.53	1.46	clayey silt to silty clay	UNDFND	UNDFD	12	.75
14.25	46.75	35.92	1.17	3.26	1.48	clayey silt to silty clay	UNDFND	UNDFD	17	1.76
14.50	47.57	36.18	1.19	3.28	1.50	clayey silt to silty clay	UNDFND	UNDFD	17	1.26
14.75	48.39	32.64	0.94	2.89	1.52	clayey silt to silty clay	UNDFND	UNDFD	16	1.76
15.00	49.21	32.20	1.02	3.18	1.54	clayey silt to silty clay	UNDFND	UNDFD	15	1.76
15.25	50.03	50.90	1.79	3.52	1.56	clayey silt to silty clay	UNDFND	UNDFD	24	1.78

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

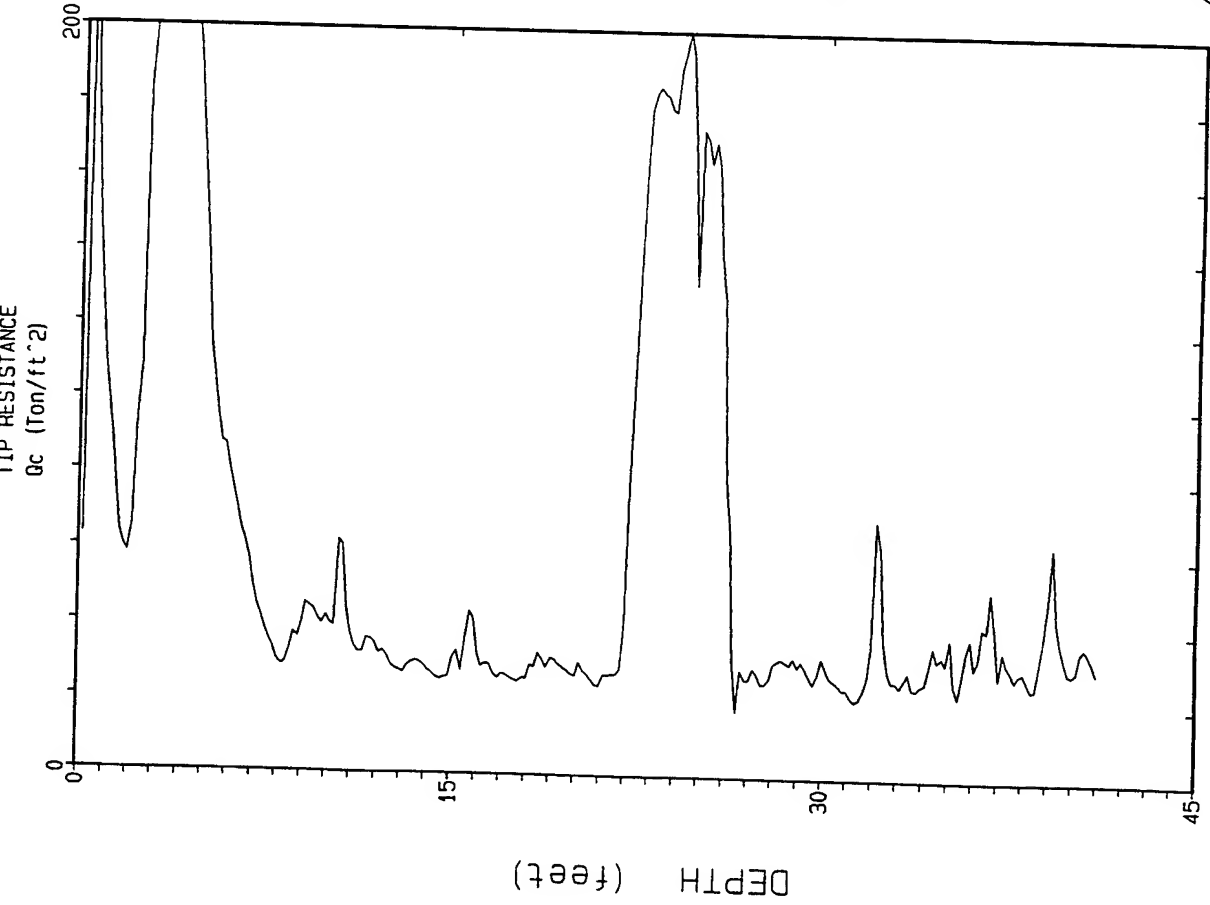
DATE : 08-11-92

DEPTH TO WATER : 8.69 FT BLS

SOUNDING NO. : CPT-27 Pg 1 / 1

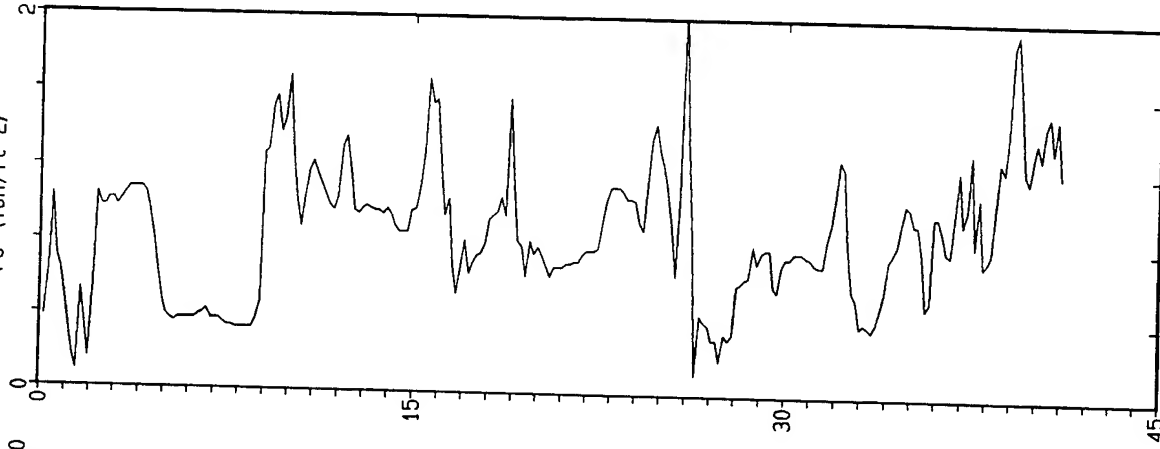
TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

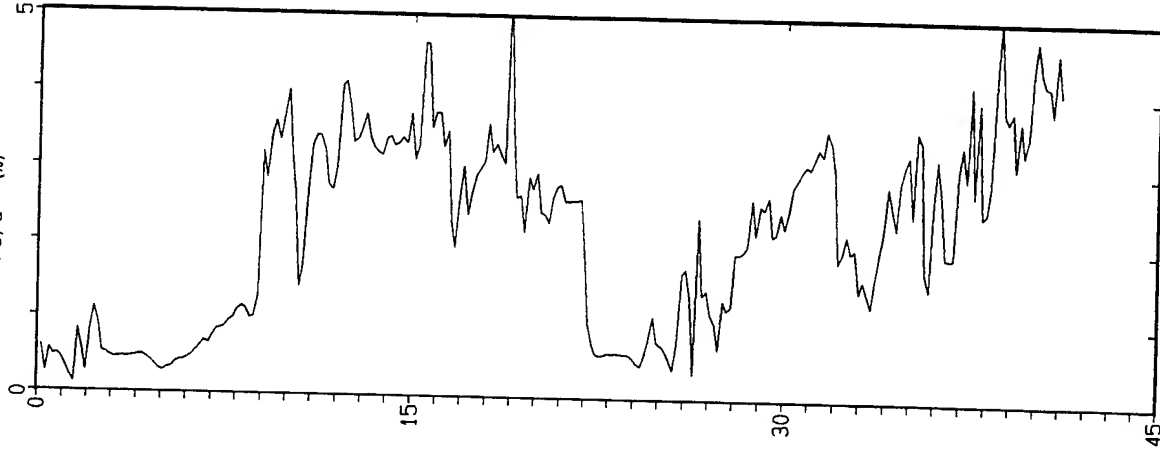


Depth Increment : .05 m

LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/Q (%)



Max Depth : 41.01 ft

Contractor : TERRA TECH SW
 Location : CPT-27
 Job No. : 92-1016
 Tot. Unit Wt. (avg) : 110 pcf

Test Date : 08-11-92
 Elevation : UNKNOWN
 Water table (meters) : 2.65

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	155.20	0.68	0.44	0.02	sand	>90	>48	30	UNDEFINED
0.50	1.64	87.44	0.32	0.37	0.07	sand	>90	>48	17	UNDEFINED
0.75	2.46	77.34	0.62	0.80	0.11	sand to silty sand	>90	>48	19	UNDEFINED
1.00	3.28	206.28	1.00	0.49	0.16	sand	>90	>48	40	UNDEFINED
1.25	4.10	226.28	1.07	0.47	0.20	sand	>90	>48	43	UNDEFINED
1.50	4.92	189.08	0.79	0.42	0.25	sand	>90	>48	36	UNDEFINED
1.75	5.74	108.20	0.38	0.35	0.29	sand	80-90	46-48	21	UNDEFINED
2.00	6.56	75.74	0.39	0.51	0.34	sand to silty sand	70-80	44-46	18	UNDEFINED
2.25	7.38	51.18	0.39	0.75	0.38	sand to silty sand	60-70	42-44	12	UNDEFINED
2.50	8.20	33.06	0.33	1.01	0.43	silty sand to sandy silt	40-50	38-40	11	UNDEFINED
2.75	9.02	34.98	0.56	1.59	0.47	sandy silt to clayey silt	UNDFND	UNDFD	13	1.52
3.00	9.84	42.82	1.44	3.37	0.50	clayey silt to silty clay	UNDFND	UNDFD	21	1.62
3.25	10.66	48.86	1.18	2.42	0.52	sandy silt to clayey silt	UNDFND	UNDFD	19	1.5
3.50	11.48	36.12	1.15	3.17	0.53	clayey silt to silty clay	UNDFND	UNDFD	17	1.5
3.75	12.30	34.38	1.14	3.30	0.55	clayey silt to silty clay	UNDFND	UNDFD	16	1.29
4.00	13.12	28.68	1.02	3.54	0.57	clayey silt to silty clay	UNDFND	UNDFD	14	1.5
4.25	13.94	29.56	0.97	3.28	0.59	clayey silt to silty clay	UNDFND	UNDFD	14	1.5
4.50	14.76	26.34	0.88	3.36	0.61	clayey silt to silty clay	UNDFND	UNDFD	13	.98
4.75	15.58	30.88	1.20	3.89	0.63	clayey silt to silty clay	UNDFND	UNDFD	15	1.5
5.00	16.40	35.22	1.26	3.57	0.65	clayey silt to silty clay	UNDFND	UNDFD	17	1.5
5.25	17.22	27.18	0.67	2.47	0.67	sandy silt to clayey silt	UNDFND	UNDFD	10	1.00
5.50	18.04	25.66	0.79	3.06	0.69	clayey silt to silty clay	UNDFND	UNDFD	12	.94
5.75	18.86	30.22	1.10	3.63	0.71	clayey silt to silty clay	UNDFND	UNDFD	14	1.5
6.00	19.69	29.88	0.83	2.79	0.73	clayey silt to silty clay	UNDFND	UNDFD	14	1.5
6.25	20.51	27.94	0.72	2.57	0.75	sandy silt to clayey silt	UNDFND	UNDFD	11	1.03
6.50	21.33	25.68	0.69	2.68	0.77	clayey silt to silty clay	UNDFND	UNDFD	12	.9
6.75	22.15	40.08	0.74	1.85	0.79	sandy silt to clayey silt	UNDFND	UNDFD	15	1.5
7.00	22.97	153.62	0.93	0.60	0.81	sand	80-90	42-44	29	UNDEFINED
7.25	23.79	182.22	1.08	0.59	0.83	sand	80-90	44-46	35	UNDEFINED
7.50	24.61	190.20	1.07	0.56	0.85	sand	80-90	44-46	36	UNDEFINED
7.75	25.43	162.82	1.19	0.73	0.87	sand	80-90	42-44	31	UNDEFINED
8.00	26.25	115.64	1.21	1.05	0.89	sand to silty sand	70-80	42-44	28	UNDEFINED
8.25	27.07	26.32	0.32	1.23	0.91	sandy silt to clayey silt	UNDFND	UNDFD	10	.9
8.50	27.89	26.96	0.29	1.08	0.92	silty sand to sandy silt	<40	34-36	9	UNDEFINED
8.75	28.71	31.30	0.66	2.10	0.94	sandy silt to clayey silt	UNDFND	UNDFD	12	1.14
9.00	29.53	30.12	0.73	2.42	0.96	sandy silt to clayey silt	UNDFND	UNDFD	12	1.05
9.25	30.35	28.60	0.70	2.45	0.98	sandy silt to clayey silt	UNDFND	UNDFD	11	1.0
9.50	31.17	24.50	0.75	3.05	1.00	clayey silt to silty clay	UNDFND	UNDFD	12	.87

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	25.88	0.85	3.28	1.02	clayey silt to silty clay	UNDFND	UNDFD	12	.5
10.00	32.81	44.88	0.88	1.97	1.04	sandy silt to clayey silt	UNDFND	UNDFD	17	1.6
10.25	33.63	26.40	0.38	1.45	1.06	sandy silt to clayey silt	UNDFND	UNDFD	10	.9
10.50	34.45	28.36	0.68	2.38	1.08	sandy silt to clayey silt	UNDFND	UNDFD	11	1.0
10.75	35.27	32.22	0.97	3.01	1.10	clayey silt to silty clay	UNDFND	UNDFD	15	1.1
11.00	36.09	30.70	0.74	2.42	1.12	sandy silt to clayey silt	UNDFND	UNDFD	12	1.1
11.25	36.91	41.04	0.93	2.26	1.14	sandy silt to clayey silt	UNDFND	UNDFD	16	1.5
11.50	37.73	30.20	1.03	3.42	1.16	clayey silt to silty clay	UNDFND	UNDFD	14	1.0
11.75	38.55	27.06	0.91	3.37	1.18	clayey silt to silty clay	UNDFND	UNDFD	13	.9
12.00	39.37	45.06	1.62	3.59	1.20	clayey silt to silty clay	UNDFND	UNDFD	22	1.6
12.25	40.19	31.60	1.27	4.01	1.22	silty clay to clay	UNDFND	UNDFD	20	1.1
12.50	41.01	33.58	1.40	4.18	1.24	silty clay to clay	UNDFND	UNDFD	21	1.2

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

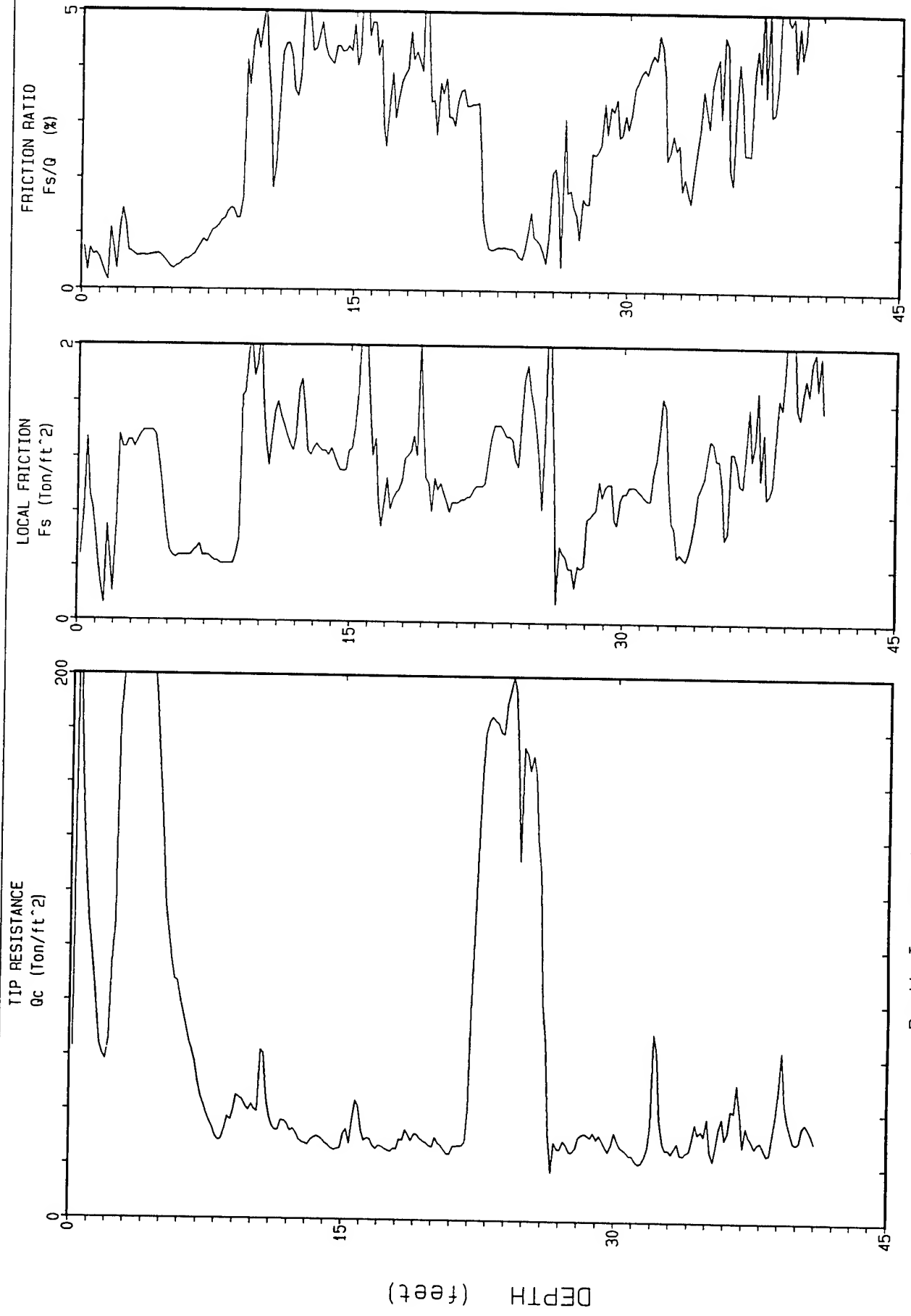
Robertson and Campanella 1983

Su: Nk= 26

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW DATE : 08-11-92 SOUNDING NO. : CPT-28A Pg 1 / 1
LOCATION : BLDG. 870 DEPTH TO WATER : 8.53 FT BLS TERRA JOB NO. : 92-1016



Depth Increment : .05 m

Max Depth : 41.01 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW
 Location : CPT-28
 Job No. : 92-1016
 Tot. Unit Wt. (avg) : 110 pcf

Test Date :A 08-11-92
 Elevation : UNKNOWN
 Water table (meters) : 2.6

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	155.20	0.88	0.57	0.02	sand	>90	>48	30	UNDEFIN
0.50	1.64	87.44	0.42	0.48	0.07	sand to silty sand	>90	>48	21	UNDEFIN
0.75	2.46	77.34	0.80	1.03	0.11	sand to silty sand	>90	>48	19	UNDEFIN
1.00	3.28	206.28	1.30	0.63	0.16	sand	>90	>48	40	UNDEFIN
1.25	4.10	226.28	1.38	0.61	0.20	sand	>90	>48	43	UNDEFIN
1.50	4.92	189.08	1.01	0.54	0.25	sand	>90	>48	36	UNDEFIN
1.75	5.74	108.20	0.48	0.45	0.29	sand	80-90	46-48	21	UNDEFIN
2.00	6.56	75.74	0.50	0.65	0.34	sand to silty sand	70-80	44-46	18	UNDEFIN
2.25	7.38	51.18	0.49	0.96	0.38	silty sand to sandy silt	60-70	42-44	16	UNDEFIN
2.50	8.20	33.06	0.43	1.29	0.43	silty sand to sandy silt	40-50	38-40	11	UNDEFIN
2.75	9.02	34.98	0.71	2.04	0.47	sandy silt to clayey silt	UNDFND	UNDFD	13	1.2
3.00	9.84	42.82	1.87	4.36	0.49	silty clay to clay	UNDFND	UNDFD	27	1.5
3.25	10.66	48.86	1.53	3.12	0.51	sandy silt to clayey silt	UNDFND	UNDFD	19	1.7
3.50	11.48	36.12	1.49	4.11	0.53	silty clay to clay	UNDFND	UNDFD	23	1.3
3.75	12.30	34.38	1.47	4.27	0.55	silty clay to clay	UNDFND	UNDFD	22	1.2
4.00	13.12	28.68	1.31	4.58	0.57	silty clay to clay	UNDFND	UNDFD	18	1.0
4.25	13.94	29.56	1.25	4.24	0.59	silty clay to clay	UNDFND	UNDFD	19	1.0
4.50	14.76	26.34	1.14	4.34	0.61	silty clay to clay	UNDFND	UNDFD	17	.9
4.75	15.58	30.88	1.55	5.02	0.63	clay	UNDFND	UNDFD	30	1.1
5.00	16.40	35.22	1.62	4.61	0.65	silty clay to clay	UNDFND	UNDFD	22	1.2
5.25	17.22	27.18	0.87	3.20	0.67	clayey silt to silty clay	UNDFND	UNDFD	13	.9
5.50	18.04	25.66	1.01	3.94	0.69	silty clay to clay	UNDFND	UNDFD	16	.9
5.75	18.86	30.22	1.42	4.69	0.71	silty clay to clay	UNDFND	UNDFD	19	1.0
6.00	19.69	29.88	1.08	3.61	0.72	clayey silt to silty clay	UNDFND	UNDFD	14	1.0
6.25	20.51	27.94	0.93	3.31	0.74	clayey silt to silty clay	UNDFND	UNDFD	13	.9
6.50	21.33	25.68	0.89	3.46	0.76	clayey silt to silty clay	UNDFND	UNDFD	12	.9
6.75	22.15	40.08	0.96	2.40	0.78	sandy silt to clayey silt	UNDFND	UNDFD	15	1.4
7.00	22.97	153.62	1.20	0.78	0.80	sand	80-90	42-44	29	UNDEFIN
7.25	23.79	182.22	1.40	0.77	0.82	sand	80-90	44-46	35	UNDEFIN
7.50	24.61	190.20	1.38	0.73	0.84	sand	80-90	44-46	36	UNDEFIN
7.75	25.43	162.82	1.54	0.95	0.86	sand	80-90	42-44	31	UNDEFIN
8.00	26.25	115.64	1.56	1.35	0.88	sand to silty sand	70-80	42-44	28	UNDEFIN
8.25	27.07	26.32	0.42	1.59	0.90	sandy silt to clayey silt	UNDFND	UNDFD	10	.9
8.50	27.89	26.96	0.38	1.41	0.92	sandy silt to clayey silt	UNDFND	UNDFD	10	.9
8.75	28.71	31.30	0.84	2.70	0.94	sandy silt to clayey silt	UNDFND	UNDFD	12	1.1
9.00	29.53	30.12	0.94	3.13	0.96	clayey silt to silty clay	UNDFND	UNDFD	14	1.0
9.25	30.35	28.60	0.90	3.16	0.98	clayey silt to silty clay	UNDFND	UNDFD	14	.9
9.50	31.17	24.50	0.97	3.95	1.00	silty clay to clay	UNDFND	UNDFD	16	.8

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	25.88	1.10	4.23	1.02	silty clay to clay	UNDFND	UNDFD	17	
10.00	32.81	44.88	1.14	2.54	1.04	sandy silt to clayey silt	UNDFND	UNDFD	17	1
10.25	33.63	26.40	0.49	1.85	1.06	sandy silt to clayey silt	UNDFND	UNDFD	10	1
10.50	34.45	28.36	0.87	3.08	1.08	clayey silt to silty clay	UNDFND	UNDFD	14	1
10.75	35.27	32.22	1.25	3.89	1.10	clayey silt to silty clay	UNDFND	UNDFD	15	1
11.00	36.09	30.70	0.96	3.12	1.11	clayey silt to silty clay	UNDFND	UNDFD	15	1
11.25	36.91	41.04	1.20	2.92	1.13	sandy silt to clayey silt	UNDFND	UNDFD	16	1.4
11.50	37.73	30.20	1.33	4.41	1.15	silty clay to clay	UNDFND	UNDFD	19	1
11.75	38.55	27.06	1.18	4.35	1.17	silty clay to clay	UNDFND	UNDFD	17	1
12.00	39.37	45.06	2.09	4.63	1.19	silty clay to clay	UNDFND	UNDFD	29	1.5
12.25	40.19	31.60	1.64	5.18	1.21	clay	UNDFND	UNDFD	30	1
12.50	41.01	33.58	1.81	5.40	1.23	clay	UNDFND	UNDFD	32	1

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-11-92

SOUNDING NO. : CPT-28B Pg 1 / 1

LOCATION : BLDG. 870

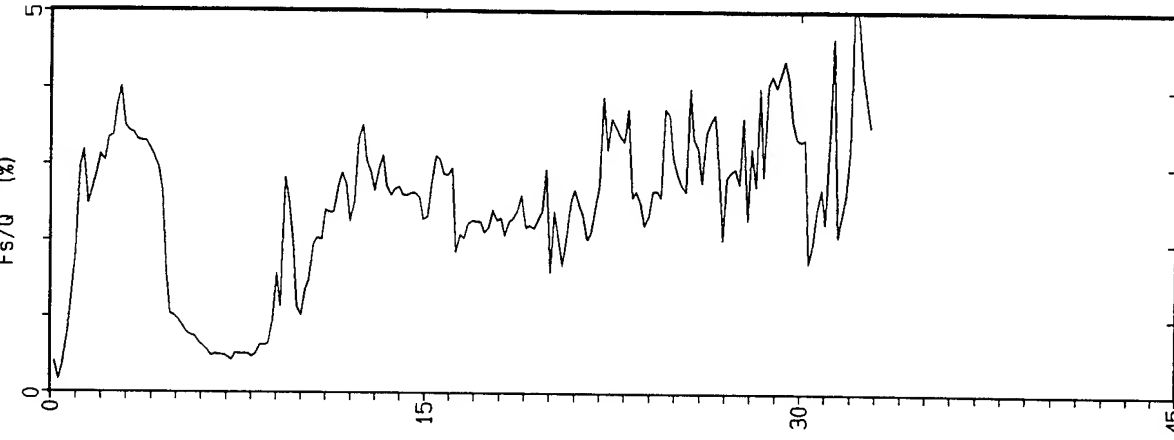
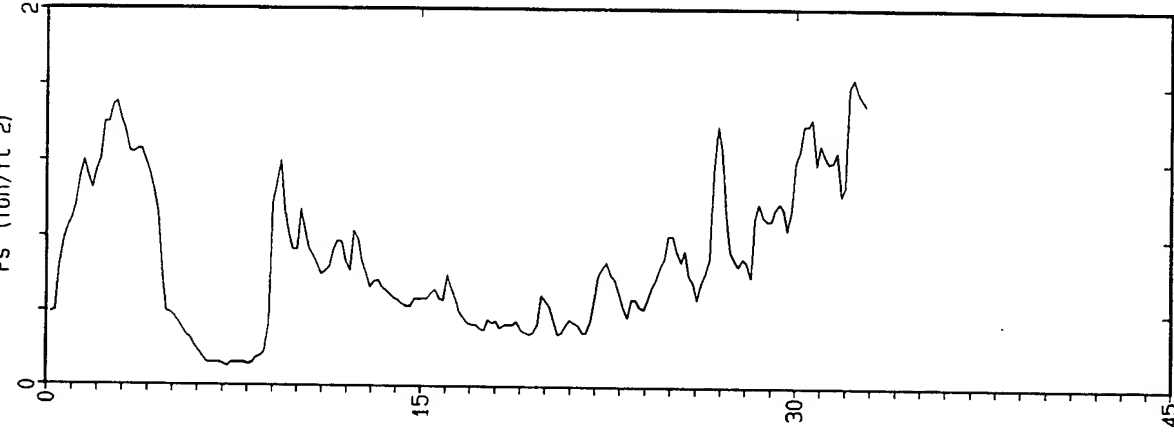
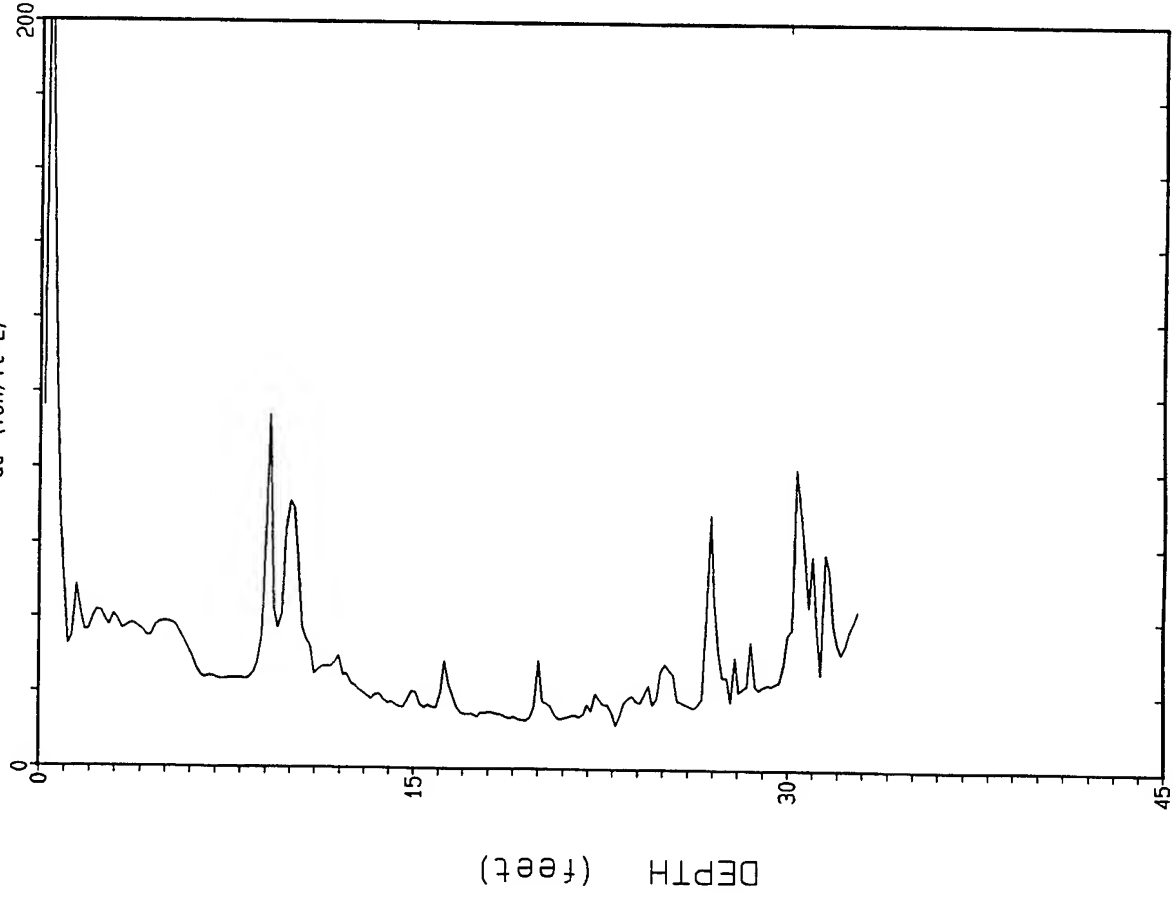
DEPTH TO WATER : 8.53 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

Contractor : TERRA TECH SW

Test Date :B 08-11-92

Location : CPT-28

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 2.6

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	136.64	0.61	0.44	0.02	sand	>90	>48	26	UNDEFIN
0.50	1.64	41.16	1.05	2.56	0.07	sandy silt to clayey silt	UNDFND	UNDFD	16	1.5
0.75	2.46	39.18	1.24	3.16	0.11	clayey silt to silty clay	UNDFND	UNDFD	19	
1.00	3.28	38.74	1.41	3.63	0.16	clayey silt to silty clay	UNDFND	UNDFD	19	
1.25	4.10	37.38	1.22	3.25	0.20	clayey silt to silty clay	UNDFND	UNDFD	18	1.3
1.50	4.92	36.86	0.67	1.81	0.25	sandy silt to clayey silt	UNDFND	UNDFD	14	
1.75	5.74	36.94	0.31	0.83	0.29	silty sand to sandy silt	50-60	42-44	12	UNDEFIN
2.00	6.56	27.18	0.16	0.57	0.34	silty sand to sandy silt	40-50	40-42	9	UNDEFIN
2.25	7.38	23.72	0.11	0.48	0.38	silty sand to sandy silt	<40	38-40	8	UNDEFIN
2.50	8.20	23.54	0.12	0.50	0.43	silty sand to sandy silt	<40	38-40	8	UNDEFIN
2.75	9.02	34.80	0.36	1.03	0.47	silty sand to sandy silt	40-50	38-40	11	UNDEFIN
3.00	9.84	55.62	0.95	1.71	0.49	silty sand to sandy silt	60-70	40-42	18	UNDEFIN
3.25	10.66	53.78	0.79	1.47	0.51	silty sand to sandy silt	50-60	40-42	17	UNDEFIN
3.50	11.48	27.40	0.65	2.36	0.53	sandy silt to clayey silt	UNDFND	UNDFD	10	
3.75	12.30	26.84	0.73	2.73	0.55	clayey silt to silty clay	UNDFND	UNDFD	13	.9
4.00	13.12	20.80	0.63	3.03	0.57	clayey silt to silty clay	UNDFND	UNDFD	10	
4.25	13.94	18.54	0.51	2.77	0.59	clayey silt to silty clay	UNDFND	UNDFD	9	
4.50	14.76	17.06	0.45	2.61	0.61	clayey silt to silty clay	UNDFND	UNDFD	8	.6
4.75	15.58	18.14	0.49	2.68	0.63	clayey silt to silty clay	UNDFND	UNDFD	9	.6
5.00	16.40	20.70	0.51	2.44	0.65	clayey silt to silty clay	UNDFND	UNDFD	10	
5.25	17.22	16.06	0.35	2.20	0.67	clayey silt to silty clay	UNDFND	UNDFD	8	
5.50	18.04	14.64	0.33	2.27	0.69	clayey silt to silty clay	UNDFND	UNDFD	7	.5
5.75	18.86	14.18	0.33	2.33	0.71	clayey silt to silty clay	UNDFND	UNDFD	7	
6.00	19.69	13.22	0.30	2.25	0.72	clayey silt to silty clay	UNDFND	UNDFD	6	
6.25	20.51	19.44	0.40	2.07	0.74	sandy silt to clayey silt	UNDFND	UNDFD	7	.6
6.50	21.33	13.70	0.33	2.41	0.76	clayey silt to silty clay	UNDFND	UNDFD	7	
6.75	22.15	15.02	0.40	2.68	0.78	clayey silt to silty clay	UNDFND	UNDFD	7	
7.00	22.97	17.54	0.60	3.41	0.80	silty clay to clay	UNDFND	UNDFD	11	.8
7.25	23.79	16.32	0.43	2.66	0.82	clayey silt to silty clay	UNDFND	UNDFD	8	.5
7.50	24.61	19.04	0.53	2.78	0.84	clayey silt to silty clay	UNDFND	UNDFD	9	
7.75	25.43	24.96	0.74	2.97	0.86	clayey silt to silty clay	UNDFND	UNDFD	12	
8.00	26.25	17.32	0.58	3.37	0.88	silty clay to clay	UNDFND	UNDFD	11	.5
8.25	27.07	37.24	1.02	2.74	0.90	sandy silt to clayey silt	UNDFND	UNDFD	14	.7
8.50	27.89	25.70	0.73	2.86	0.92	clayey silt to silty clay	UNDFND	UNDFD	12	
8.75	28.71	24.26	0.81	3.34	0.94	clayey silt to silty clay	UNDFND	UNDFD	12	.8
9.00	29.53	22.30	0.93	4.18	0.96	silty clay to clay	UNDFND	UNDFD	14	.7
9.25	30.35	41.20	1.13	2.74	0.98	sandy silt to clayey silt	UNDFND	UNDFD	16	1.4
9.50	31.17	53.48	1.30	2.44	1.00	sandy silt to clayey silt	UNDFND	UNDFD	20	1.7

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	41.90	1.15	2.74	1.02	sandy silt to clayey silt	UNDFND	UNDFD	16	1.4
10.00	32.81	36.76	1.57	4.26	1.04	silty clay to clay	UNDFND	UNDFD	23	1.2

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 27

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-11-92

SOUNDING NO. : CPT-29 Pg 1 / 1

LOCATION : BLDG. 870

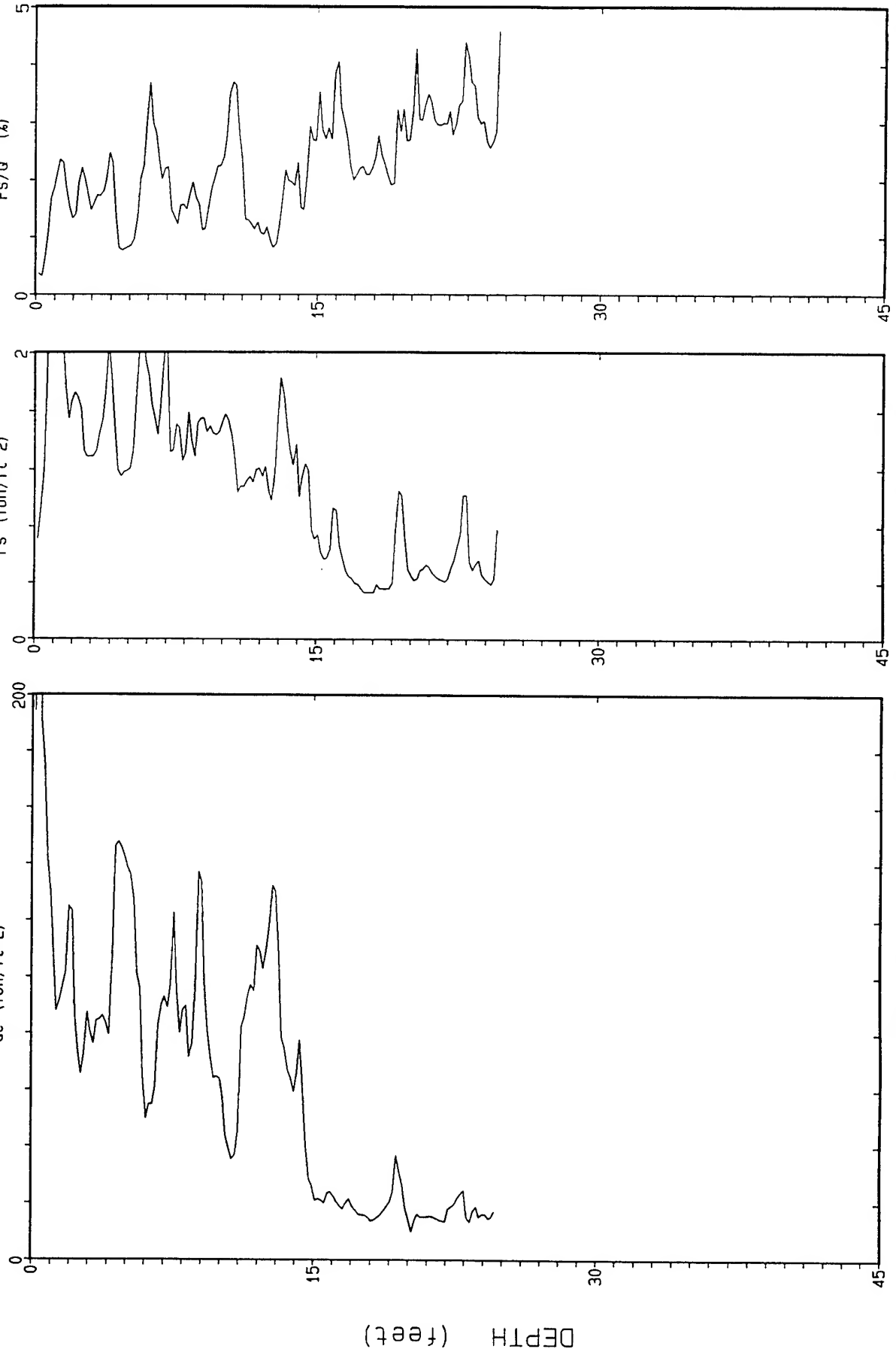
DEPTH TO WATER : 6.07 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 24.61 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-11-92

Location : CPT-29

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 1.85

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	199.34	1.44	0.72	0.02	sand	>90	>48	38	UNDEFINED
0.50	1.64	102.92	2.14	2.08	0.07	silty sand to sandy silt	>90	>48	33	UNDEFINED
0.75	2.46	102.16	1.65	1.62	0.11	silty sand to sandy silt	>90	>48	33	UNDEFINED
1.00	3.28	76.62	1.31	1.70	0.16	silty sand to sandy silt	80-90	46-48	24	UNDEFINED
1.25	4.10	83.80	1.73	2.06	0.20	silty sand to sandy silt	80-90	46-48	27	UNDEFINED
1.50	4.92	138.02	1.24	0.90	0.25	sand	>90	>48	26	UNDEFINED
1.75	5.74	119.96	1.69	1.41	0.29	sand to silty sand	80-90	46-48	29	UNDEFINED
2.00	6.56	57.06	1.68	2.95	0.34	sandy silt to clayey silt	UNDFND	UNDFD	22	2.20
2.25	7.38	90.46	1.68	1.85	0.36	silty sand to sandy silt	70-80	44-46	29	UNDEFINED
2.50	8.20	95.34	1.43	1.50	0.37	silty sand to sandy silt	70-80	44-46	30	UNDEFINED
2.75	9.02	103.04	1.46	1.42	0.39	sand to silty sand	80-90	44-46	25	UNDEFINED
3.00	9.84	76.04	1.46	1.92	0.41	silty sand to sandy silt	70-80	42-44	24	UNDEFINED
3.25	10.66	47.74	1.48	3.09	0.43	sandy silt to clayey silt	UNDFND	UNDFD	18	1.80
3.50	11.48	68.68	1.09	1.59	0.45	silty sand to sandy silt	60-70	42-44	22	UNDEFINED
3.75	12.30	103.12	1.18	1.14	0.47	sand to silty sand	70-80	44-46	25	UNDEFINED
4.00	13.12	120.56	1.32	1.09	0.49	sand to silty sand	80-90	44-46	29	UNDEFINED
4.25	13.94	68.88	1.43	2.07	0.51	silty sand to sandy silt	60-70	42-44	22	UNDEFINED
4.50	14.76	54.34	1.07	1.97	0.53	silty sand to sandy silt	50-60	40-42	17	UNDEFINED
4.75	15.58	21.90	0.64	2.94	0.55	clayey silt to silty clay	UNDFND	UNDFD	10	.84
5.00	16.40	21.90	0.74	3.40	0.57	clayey silt to silty clay	UNDFND	UNDFD	10	.84
5.25	17.22	19.18	0.43	2.25	0.59	clayey silt to silty clay	UNDFND	UNDFD	9	.73
5.50	18.04	15.18	0.34	2.21	0.61	clayey silt to silty clay	UNDFND	UNDFD	7	.56
5.75	18.86	16.10	0.37	2.27	0.63	clayey silt to silty clay	UNDFND	UNDFD	8	.60
6.00	19.69	27.78	0.79	2.84	0.65	clayey silt to silty clay	UNDFND	UNDFD	13	1.06
6.25	20.51	14.46	0.46	3.17	0.67	silty clay to clay	UNDFND	UNDFD	9	.53
6.50	21.33	15.16	0.49	3.25	0.69	silty clay to clay	UNDFND	UNDFD	10	.56
6.75	22.15	14.70	0.44	2.98	0.71	clayey silt to silty clay	UNDFND	UNDFD	7	.54
7.00	22.97	21.58	0.80	3.70	0.73	silty clay to clay	UNDFND	UNDFD	14	.81
7.25	23.79	15.80	0.52	3.28	0.75	silty clay to clay	UNDFND	UNDFD	10	.58
7.50	24.61	15.72	0.49	3.10	0.76	clayey silt to silty clay	UNDFND	UNDFD	8	.57

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

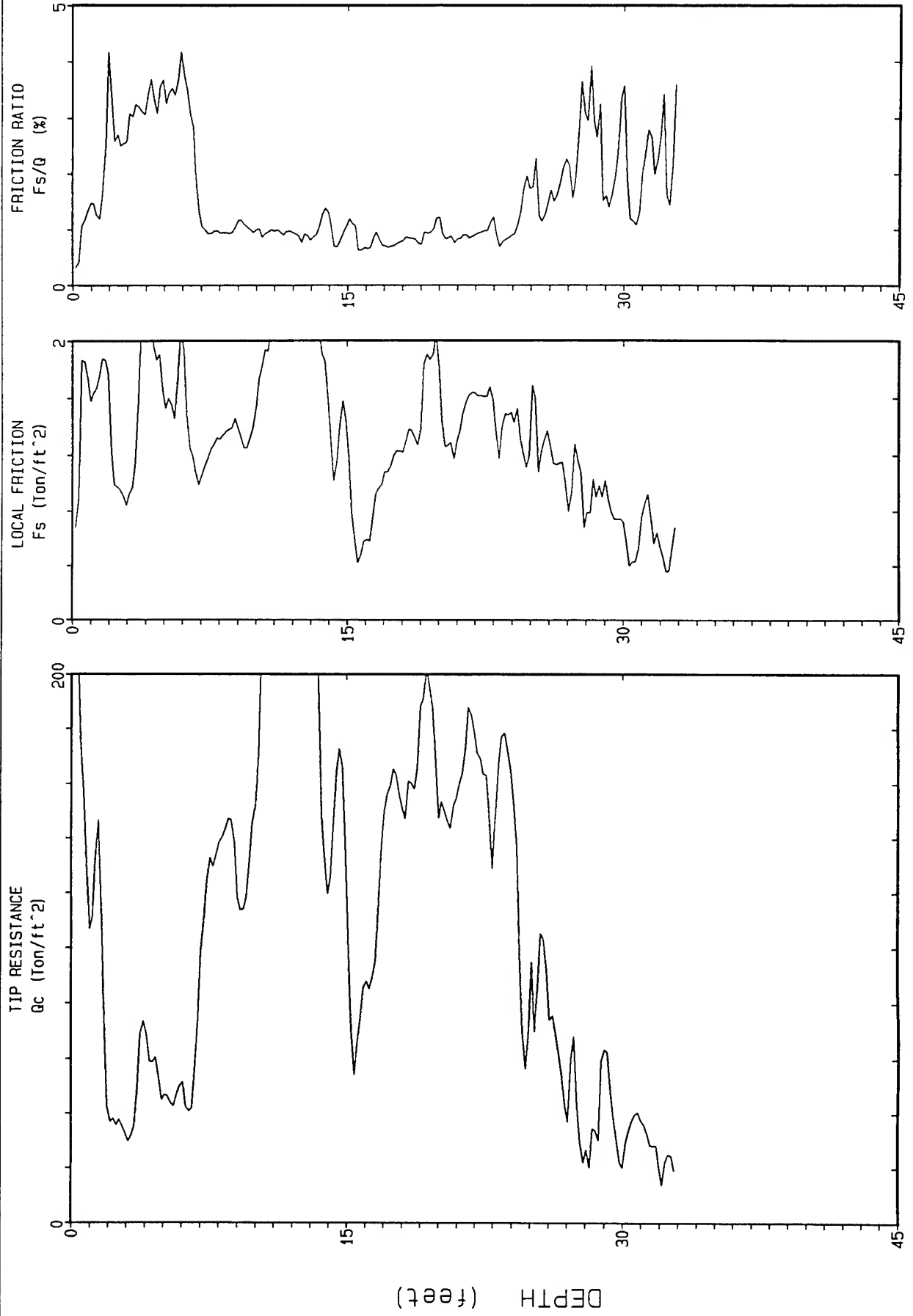
DATE : 08-11-92

SOUNDING NO. : CPT-30 Pg 1 / 1

LOCATION : BLDG. 870

DEPTH TO WATER : 18.37 FT BLS

TERRA JOB NO. : 92-1016



Depth Increment : .05 m

Max Depth : 32.81 ft

Contractor : TERRA TECH SW

Test Date : 08-11-92

Location : CPT-30

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 5.6

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	177.50	1.41	0.79	0.02	sand	>90	>48	34	UNDEFINED
0.50	1.64	122.48	1.71	1.39	0.07	sand to silty sand	>90	>48	29	UNDEFINED
0.75	2.46	45.60	1.36	2.99	0.11	sandy silt to clayey silt	UNDFND	UNDFD	17	1.8
1.00	3.28	33.56	0.92	2.74	0.16	sandy silt to clayey silt	UNDFND	UNDFD	13	1.3
1.25	4.10	59.32	1.90	3.21	0.20	sandy silt to clayey silt	UNDFND	UNDFD	23	2.3
1.50	4.92	55.36	1.92	3.46	0.25	clayey silt to silty clay	UNDFND	UNDFD	27	2.2
1.75	5.74	45.40	1.58	3.47	0.29	clayey silt to silty clay	UNDFND	UNDFD	22	1.8
2.00	6.56	45.26	1.59	3.51	0.34	clayey silt to silty clay	UNDFND	UNDFD	22	1.7
2.25	7.38	93.12	1.08	1.16	0.38	sand to silty sand	70-80	44-46	22	UNDEFINED
2.50	8.20	135.26	1.30	0.96	0.43	sand to silty sand	80-90	44-46	32	UNDEFINED
2.75	9.02	138.80	1.40	1.01	0.47	sand to silty sand	80-90	44-46	33	UNDEFINED
3.00	9.84	124.88	1.31	1.05	0.52	sand to silty sand	80-90	44-46	30	UNDEFINED
3.25	10.66	187.76	1.79	0.95	0.56	sand	>90	46-48	36	UNDEFINED
3.50	11.48	227.40	2.21	0.97	0.61	sand	>90	46-48	44	UNDEFINED
3.75	12.30	285.42	2.70	0.95	0.65	sand	>90	46-48	>50	UNDEFINED
4.00	13.12	285.80	2.45	0.86	0.70	sand	>90	46-48	>50	UNDEFINED
4.25	13.94	167.48	1.93	1.15	0.74	sand to silty sand	80-90	44-46	40	UNDEFINED
4.50	14.76	154.58	1.29	0.83	0.79	sand	80-90	42-44	30	UNDEFINED
4.75	15.58	85.48	0.89	1.04	0.83	sand to silty sand	60-70	40-42	20	UNDEFINED
5.00	16.40	84.80	0.60	0.71	0.88	sand to silty sand	60-70	40-42	20	UNDEFINED
5.25	17.22	130.52	1.01	0.77	0.92	sand	70-80	42-44	25	UNDEFINED
5.50	18.04	158.96	1.20	0.75	0.97	sand	80-90	42-44	30	UNDEFINED
5.75	18.86	158.50	1.33	0.84	1.01	sand	70-80	42-44	30	UNDEFINED
6.00	19.69	193.04	1.78	0.92	1.03	sand	80-90	42-44	37	UNDEFINED
6.25	20.51	153.60	1.57	1.02	1.05	sand	70-80	42-44	29	UNDEFINED
6.50	21.33	155.02	1.32	0.85	1.07	sand	70-80	42-44	30	UNDEFINED
6.75	22.15	179.32	1.62	0.90	1.09	sand	80-90	42-44	34	UNDEFINED
7.00	22.97	154.74	1.62	1.05	1.11	sand	70-80	42-44	30	UNDEFINED
7.25	23.79	168.52	1.38	0.82	1.13	sand	70-80	42-44	32	UNDEFINED
7.50	24.61	124.78	1.40	1.12	1.15	sand to silty sand	70-80	40-42	30	UNDEFINED
7.75	25.43	75.10	1.33	1.78	1.17	silty sand to sandy silt	50-60	38-40	24	UNDEFINED
8.00	26.25	90.22	1.26	1.40	1.19	sand to silty sand	60-70	38-40	22	UNDEFINED
8.25	27.07	53.20	1.04	1.95	1.21	silty sand to sandy silt	40-50	36-38	17	UNDEFINED
8.50	27.89	44.40	1.03	2.32	1.23	sandy silt to clayey silt	UNDFND	UNDFD	17	1.71
8.75	28.71	29.08	0.90	3.09	1.25	clayey silt to silty clay	UNDFND	UNDFD	14	1.10
9.00	29.53	54.24	0.87	1.60	1.27	silty sand to sandy silt	40-50	36-38	17	UNDEFINED
9.25	30.35	27.16	0.63	2.33	1.29	sandy silt to clayey silt	UNDFND	UNDFD	10	1.02
9.50	31.17	38.08	0.60	1.58	1.30	silty sand to sandy silt	<40	34-36	12	UNDEFINED

Dr - All sands (Jamiołkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	27.54	0.68	2.48	1.32	sandy silt to clayey silt	UNDFND	UNDFD	11	1.0
10.00	32.81	20.84	0.48	2.30	1.34	clayey silt to silty clay	UNDFND	UNDFD	10	

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	6.26	0.17	2.68	1.03	silty clay to clay	UNDFND	UNDFD	4	.18
10.00	32.81	10.24	0.24	2.38	1.05	clayey silt to silty clay	UNDFND	UNDFD	5	.33
10.25	33.63	14.94	0.35	2.34	1.07	clayey silt to silty clay	UNDFND	UNDFD	7	.52
10.50	34.45	23.84	0.73	3.06	1.09	clayey silt to silty clay	UNDFND	UNDFD	11	.87
10.75	35.27	22.18	0.68	3.05	1.11	clayey silt to silty clay	UNDFND	UNDFD	11	.81
11.00	36.09	22.46	0.74	3.31	1.12	clayey silt to silty clay	UNDFND	UNDFD	11	.82
11.25	36.91	24.56	0.76	3.09	1.14	clayey silt to silty clay	UNDFND	UNDFD	12	.90
11.50	37.73	23.32	0.73	3.11	1.16	clayey silt to silty clay	UNDFND	UNDFD	11	.85
11.75	38.55	42.24	1.34	3.17	1.18	clayey silt to silty clay	UNDFND	UNDFD	20	1.60
12.00	39.37	21.24	0.92	4.34	1.20	silty clay to clay	UNDFND	UNDFD	14	.76
12.25	40.19	27.82	1.17	4.19	1.22	silty clay to clay	UNDFND	UNDFD	18	1.02
12.50	41.01	60.42	1.38	2.29	1.24	sandy silt to clayey silt	UNDFND	UNDFD	23	2.32

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-12-92

SOUNDING NO. : CPT-32 Pg 1 / 1

LOCATION : BLDG. 870

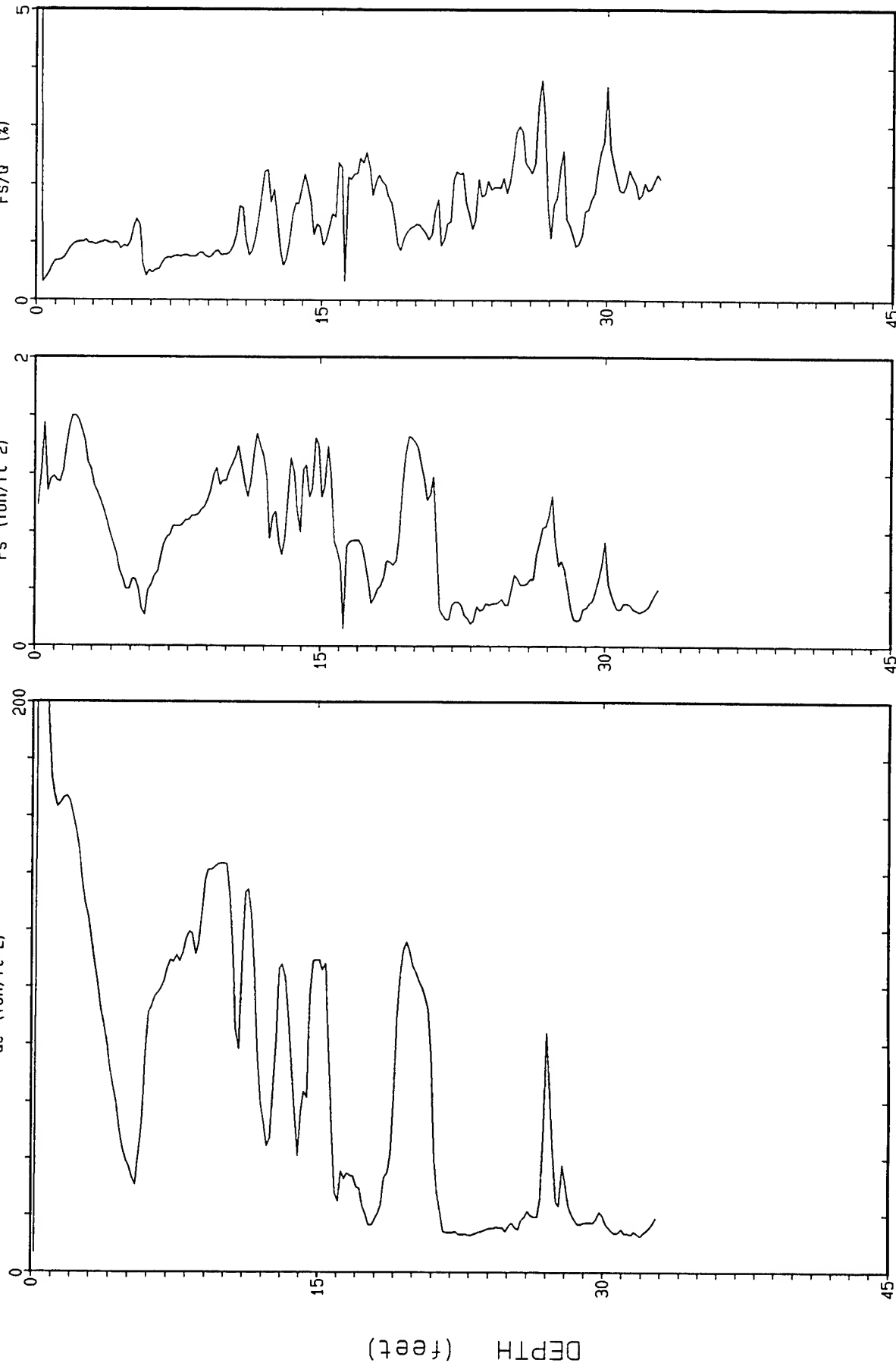
DEPTH TO WATER : 10.17 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date : 08-12-92

Location : CPT-32

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 3.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	247.84	1.20	0.48	0.02	sand	>90	UNDFD	47	UNDEFINED
0.50	1.64	167.08	1.21	0.73	0.07	sand	>90	>48	32	UNDEFINED
0.75	2.46	159.10	1.56	0.98	0.11	sand	>90	>48	30	UNDEFINED
1.00	3.28	123.48	1.23	0.99	0.16	sand to silty sand	>90	>48	30	UNDEFINED
1.25	4.10	86.94	0.87	1.00	0.20	sand to silty sand	80-90	46-48	21	UNDEFINED
1.50	4.92	51.44	0.49	0.95	0.25	silty sand to sandy silt	60-70	44-46	16	UNDEFINED
1.75	5.74	39.04	0.36	0.93	0.29	silty sand to sandy silt	50-60	42-44	12	UNDEFINED
2.00	6.56	90.60	0.49	0.54	0.34	sand to silty sand	70-80	44-46	22	UNDEFINED
2.25	7.38	105.24	0.79	0.75	0.38	sand to silty sand	80-90	44-46	25	UNDEFINED
2.50	8.20	113.74	0.87	0.77	0.43	sand to silty sand	80-90	44-46	27	UNDEFINED
2.75	9.02	121.96	0.95	0.78	0.47	sand	80-90	44-46	23	UNDEFINED
3.00	9.84	142.34	1.16	0.81	0.52	sand	80-90	44-46	27	UNDEFINED
3.25	10.66	123.80	1.27	1.02	0.56	sand to silty sand	80-90	44-46	30	UNDEFINED
3.50	11.48	115.78	1.19	1.02	0.58	sand to silty sand	70-80	44-46	28	UNDEFINED
3.75	12.30	67.52	1.23	1.82	0.60	silty sand to sandy silt	60-70	40-42	22	UNDEFINED
4.00	13.12	81.78	0.79	0.97	0.62	sand to silty sand	60-70	42-44	20	UNDEFINED
4.25	13.94	72.70	1.06	1.46	0.64	silty sand to sandy silt	60-70	40-42	23	UNDEFINED
4.50	14.76	77.46	1.22	1.57	0.66	silty sand to sandy silt	60-70	40-42	25	UNDEFINED
4.75	15.58	102.68	1.23	1.20	0.68	sand to silty sand	70-80	42-44	25	UNDEFINED
5.00	16.40	34.42	0.56	1.62	0.70	sandy silt to clayey silt	UNDFND	UNDFD	13	1.15
5.25	17.22	32.44	0.73	2.25	0.72	sandy silt to clayey silt	UNDFND	UNDFD	12	1.08
5.50	18.04	18.98	0.42	2.21	0.74	clayey silt to silty clay	UNDFND	UNDFD	9	.62
5.75	18.86	30.74	0.53	1.73	0.76	sandy silt to clayey silt	UNDFND	UNDFD	12	1.02
6.00	19.69	96.72	1.06	1.09	0.78	sand to silty sand	60-70	40-42	23	UNDEFINED
6.25	20.51	105.54	1.33	1.26	0.80	sand to silty sand	70-80	42-44	25	UNDEFINED
6.50	21.33	66.60	0.84	1.26	0.81	silty sand to sandy silt	50-60	40-42	21	UNDEFINED
6.75	22.15	15.30	0.24	1.57	0.83	sandy silt to clayey silt	UNDFND	UNDFD	6	.48
7.00	22.97	13.32	0.24	1.77	0.85	clayey silt to silty clay	UNDFND	UNDFD	6	.41
7.25	23.79	13.76	0.25	1.85	0.87	clayey silt to silty clay	UNDFND	UNDFD	7	.43
7.50	24.61	15.44	0.31	1.98	0.89	clayey silt to silty clay	UNDFND	UNDFD	7	.48
7.75	25.43	15.76	0.39	2.47	0.91	clayey silt to silty clay	UNDFND	UNDFD	8	.49
8.00	26.25	18.66	0.45	2.40	0.93	clayey silt to silty clay	UNDFND	UNDFD	9	.59
8.25	27.07	40.00	0.79	1.98	0.95	sandy silt to clayey silt	UNDFND	UNDFD	15	1.32
8.50	27.89	37.98	0.70	1.83	0.97	sandy silt to clayey silt	UNDFND	UNDFD	15	1.25
8.75	28.71	22.02	0.25	1.12	0.99	sandy silt to clayey silt	UNDFND	UNDFD	8	.70
9.00	29.53	17.12	0.31	1.80	1.01	sandy silt to clayey silt	UNDFND	UNDFD	7	.53
9.25	30.35	18.36	0.52	2.82	1.03	clayey silt to silty clay	UNDFND	UNDFD	9	.57
9.50	31.17	14.02	0.28	2.03	1.05	clayey silt to silty clay	UNDFND	UNDFD	7	.42

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 29

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	13.22	0.26	1.95	1.07	clayey silt to silty clay	UNDFND	UNDFD	6	.3
10.00	32.81	15.94	0.33	2.05	1.09	clayey silt to silty clay	UNDFND	UNDFD	8	.4

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 29

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-12-92

SOUNDING NO. : CPT-33A Pg 1 / 1

LOCATION : BLDG. 870

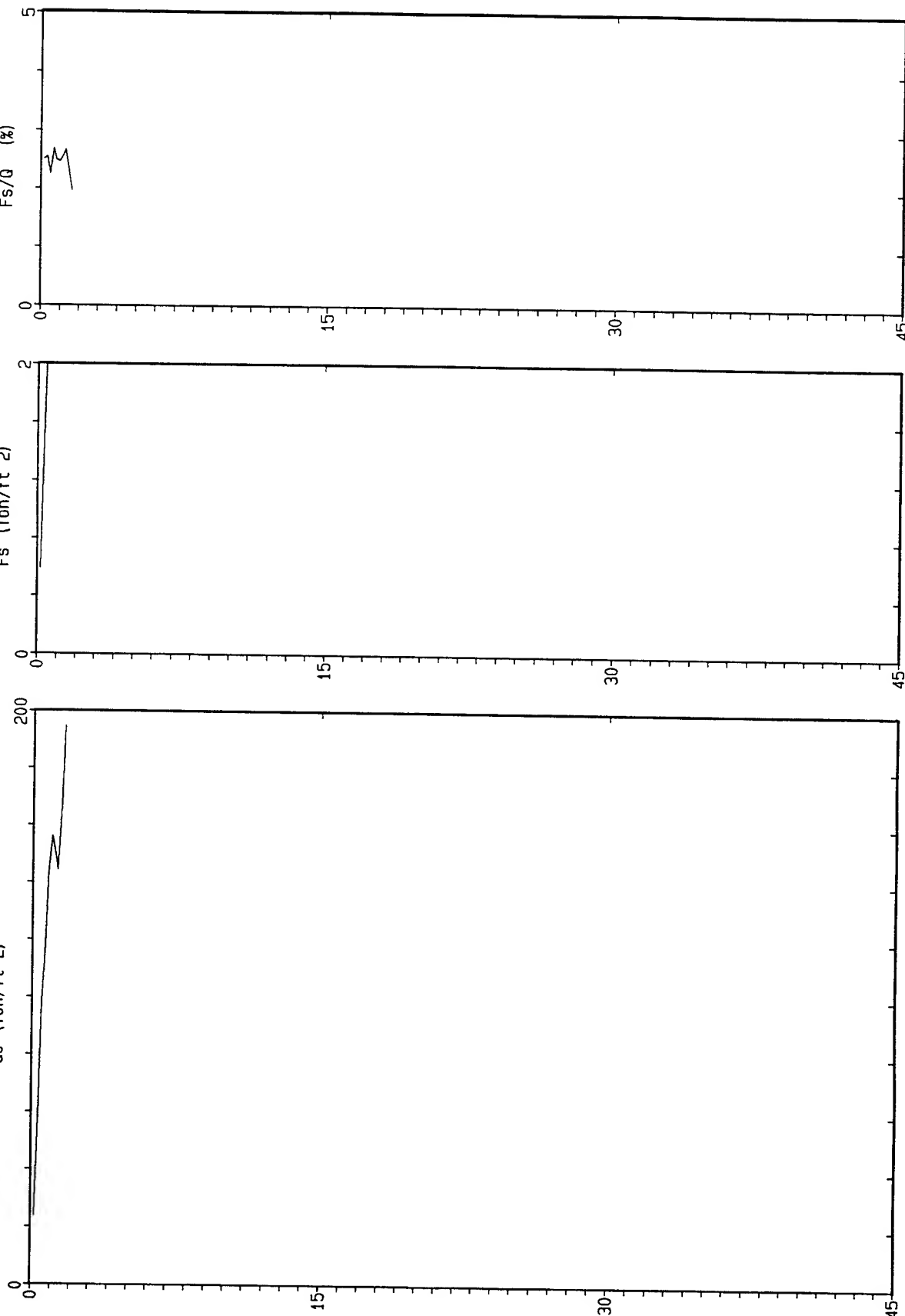
DEPTH TO WATER : 23.29 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 1.64 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date :A 08-12-92

Location : CPT-33

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	88.50	2.21	2.50	0.02	silty sand to sandy silt	>90	>48	28	UNDEFINED
0.50	1.64	162.56	3.85	2.37	0.07	silty sand to sandy silt	>90	>48	>50	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-12-92

SOUNDING NO. : CPT-33B Pg 1 / 1

LOCATION : BLDG. 870

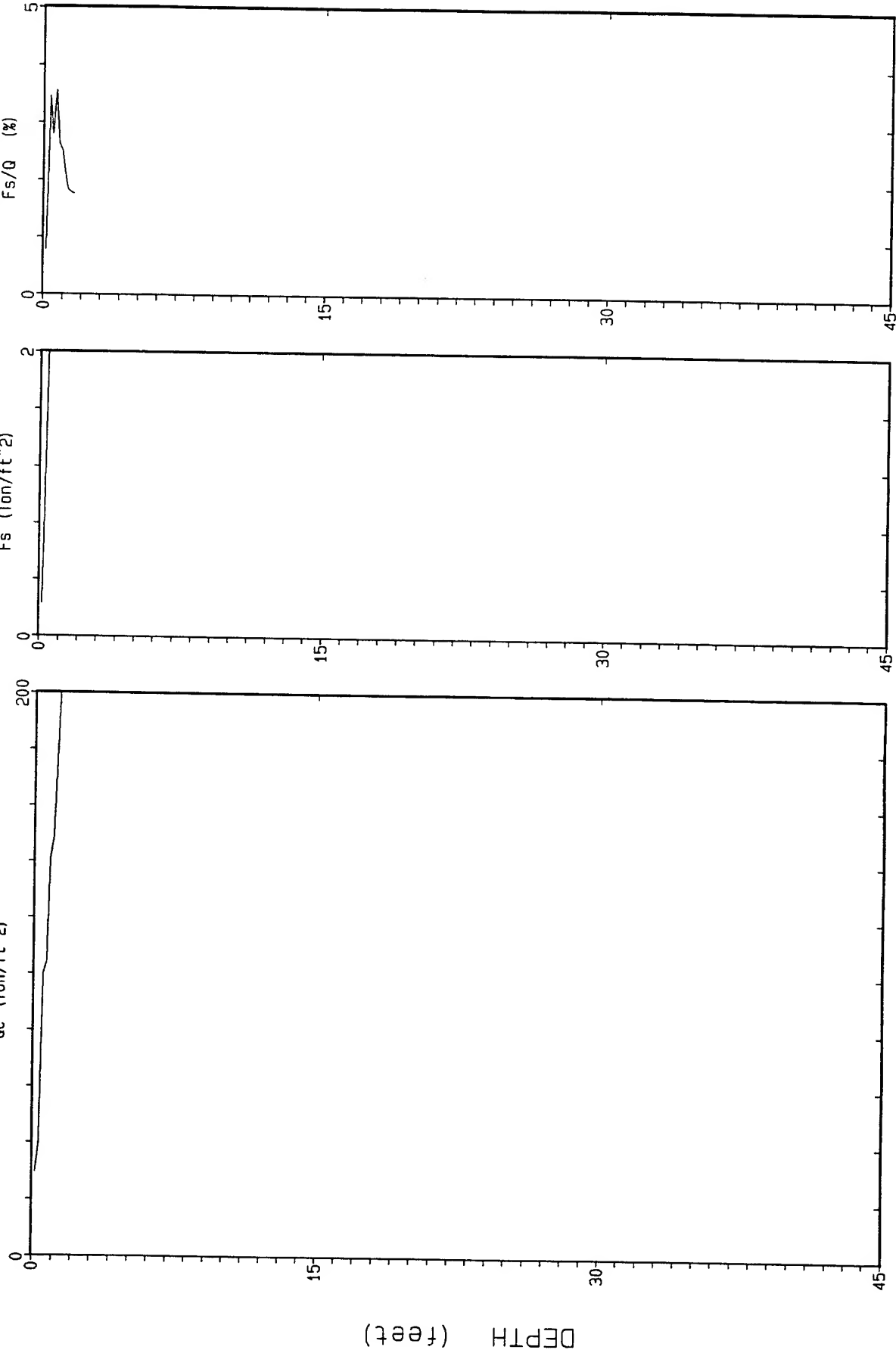
DEPTH TO WATER : 23.29 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 1.64 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date :B 08-12-92

Location : CPT-33

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	82.98	2.37	2.86	0.02	sandy silt to clayey silt	UNDFND	UNDFD	32	3.51
0.50	1.64	189.16	3.72	1.97	0.07	sand to silty sand	>90	>48	45	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-12-92

SOUNDING NO. : CPT-33C Pg 1 / 1

LOCATION : BLDG. 870

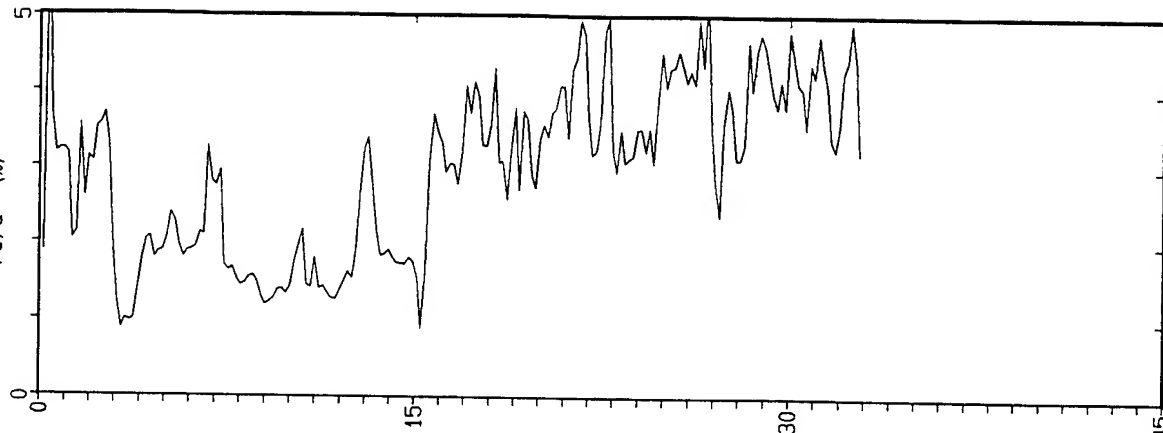
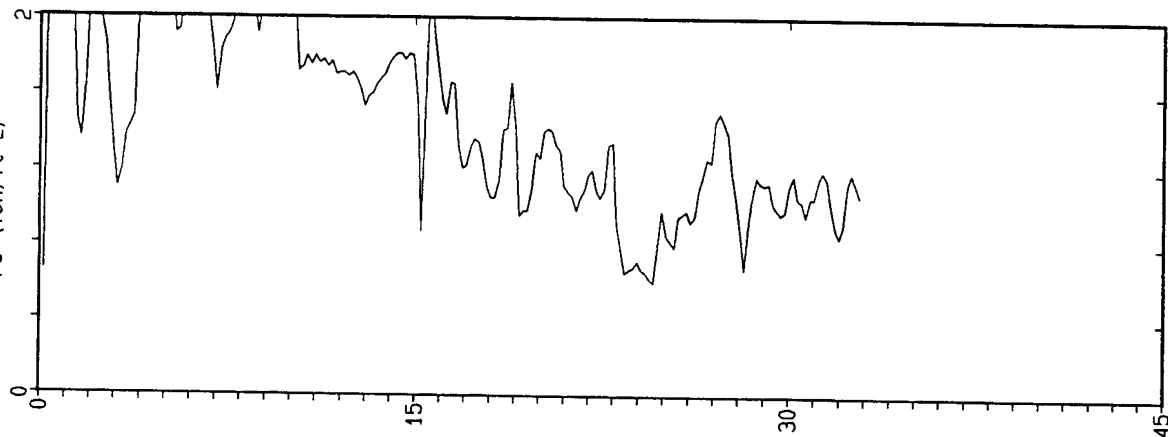
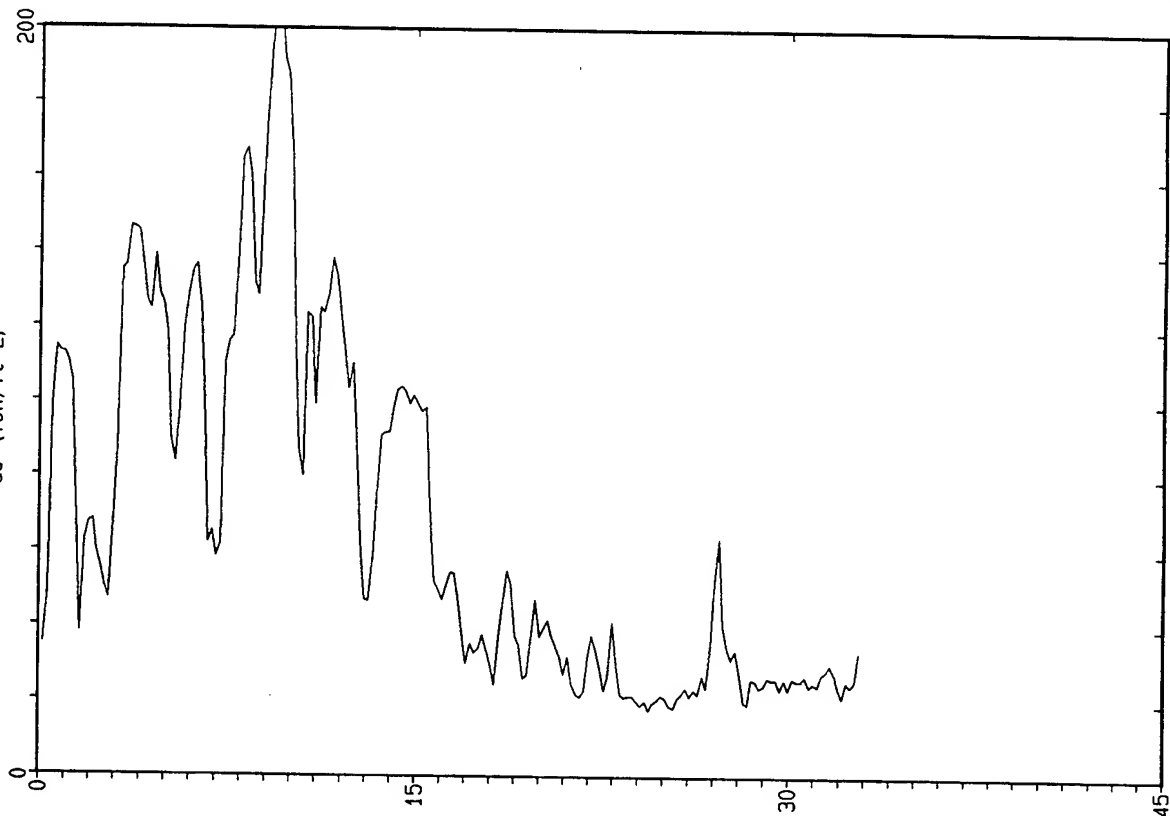
DEPTH TO WATER : 23.29 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

Contractor : TERRA TECH SW

Test Date :C 08-12-92

Location : CPT-33

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	82.06	2.96	3.61	0.02	sandy silt to clayey silt	UNDFND	UNDFD	31	3.28
0.50	1.64	86.98	2.43	2.79	0.07	sandy silt to clayey silt	UNDFND	UNDFD	33	3.47
0.75	2.46	62.60	1.99	3.17	0.11	sandy silt to clayey silt	UNDFND	UNDFD	24	2.49
1.00	3.28	77.38	1.40	1.81	0.16	silty sand to sandy silt	80-90	46-48	25	UNDEFINED
1.25	4.10	142.34	1.76	1.24	0.20	sand to silty sand	>90	>48	34	UNDEFINED
1.50	4.92	129.10	2.51	1.94	0.25	silty sand to sandy silt	>90	46-48	41	UNDEFINED
1.75	5.74	102.08	2.13	2.09	0.29	silty sand to sandy silt	80-90	46-48	33	UNDEFINED
2.00	6.56	125.18	2.50	2.00	0.34	silty sand to sandy silt	80-90	46-48	40	UNDEFINED
2.25	7.38	71.58	1.84	2.57	0.38	sandy silt to clayey silt	UNDFND	UNDFD	27	2.84
2.50	8.20	141.32	2.19	1.55	0.43	sand to silty sand	80-90	46-48	34	UNDEFINED
2.75	9.02	151.96	2.14	1.41	0.47	sand to silty sand	80-90	44-46	36	UNDEFINED
3.00	9.84	197.98	2.64	1.33	0.52	sand to silty sand	>90	46-48	47	UNDEFINED
3.25	10.66	115.04	1.94	1.69	0.56	silty sand to sandy silt	70-80	44-46	37	UNDEFINED
3.50	11.48	119.92	1.77	1.47	0.61	sand to silty sand	70-80	42-44	29	UNDEFINED
3.75	12.30	122.40	1.72	1.40	0.65	sand to silty sand	70-80	42-44	29	UNDEFINED
4.00	13.12	70.16	1.62	2.31	0.70	silty sand to sandy silt	60-70	40-42	22	UNDEFINED
4.25	13.94	81.56	1.68	2.06	0.74	silty sand to sandy silt	60-70	40-42	26	UNDEFINED
4.50	14.76	101.68	1.80	1.77	0.79	silty sand to sandy silt	70-80	42-44	32	UNDEFINED
4.75	15.58	93.90	1.61	1.72	0.83	silty sand to sandy silt	60-70	40-42	30	UNDEFINED
5.00	16.40	50.78	1.68	3.31	0.88	clayey silt to silty clay	UNDFND	UNDFD	24	1.99
5.25	17.22	40.96	1.35	3.29	0.92	clayey silt to silty clay	UNDFND	UNDFD	20	1.60
5.50	18.04	33.50	1.22	3.64	0.97	clayey silt to silty clay	UNDFND	UNDFD	16	1.30
5.75	18.86	42.68	1.34	3.13	1.01	sandy silt to clayey silt	UNDFND	UNDFD	16	1.66
6.00	19.69	32.68	1.09	3.32	1.06	clayey silt to silty clay	UNDFND	UNDFD	16	1.26
6.25	20.51	40.56	1.35	3.34	1.11	clayey silt to silty clay	UNDFND	UNDFD	19	1.57
6.50	21.33	30.12	1.18	3.90	1.15	clayey silt to silty clay	UNDFND	UNDFD	14	1.15
6.75	22.15	27.14	1.10	4.05	1.20	silty clay to clay	UNDFND	UNDFD	17	1.03
7.00	22.97	30.74	1.18	3.85	1.24	clayey silt to silty clay	UNDFND	UNDFD	15	1.18
7.25	23.79	23.42	0.74	3.14	1.28	clayey silt to silty clay	UNDFND	UNDFD	11	.88
7.50	24.61	19.32	0.65	3.36	1.30	clayey silt to silty clay	UNDFND	UNDFD	9	.71
7.75	25.43	20.04	0.85	4.23	1.32	silty clay to clay	UNDFND	UNDFD	13	.74
8.00	26.25	22.24	0.95	4.28	1.34	silty clay to clay	UNDFND	UNDFD	14	.83
8.25	27.07	31.98	1.24	3.89	1.36	clayey silt to silty clay	UNDFND	UNDFD	15	1.22
8.50	27.89	40.68	1.32	3.24	1.38	clayey silt to silty clay	UNDFND	UNDFD	19	1.56
8.75	28.71	23.86	0.93	3.91	1.40	silty clay to clay	UNDFND	UNDFD	15	.89
9.00	29.53	25.28	1.08	4.26	1.42	silty clay to clay	UNDFND	UNDFD	16	.94
9.25	30.35	24.78	1.05	4.25	1.44	silty clay to clay	UNDFND	UNDFD	16	.92
9.50	31.17	25.12	1.05	4.16	1.46	silty clay to clay	UNDFND	UNDFD	16	.93

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	27.30	1.02	3.72	1.48	clayey silt to silty clay	UNDFND	UNDFD	13	1.02
10.00	32.81	25.84	1.08	4.16	1.50	silty clay to clay	UNDFND	UNDFD	17	.96

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

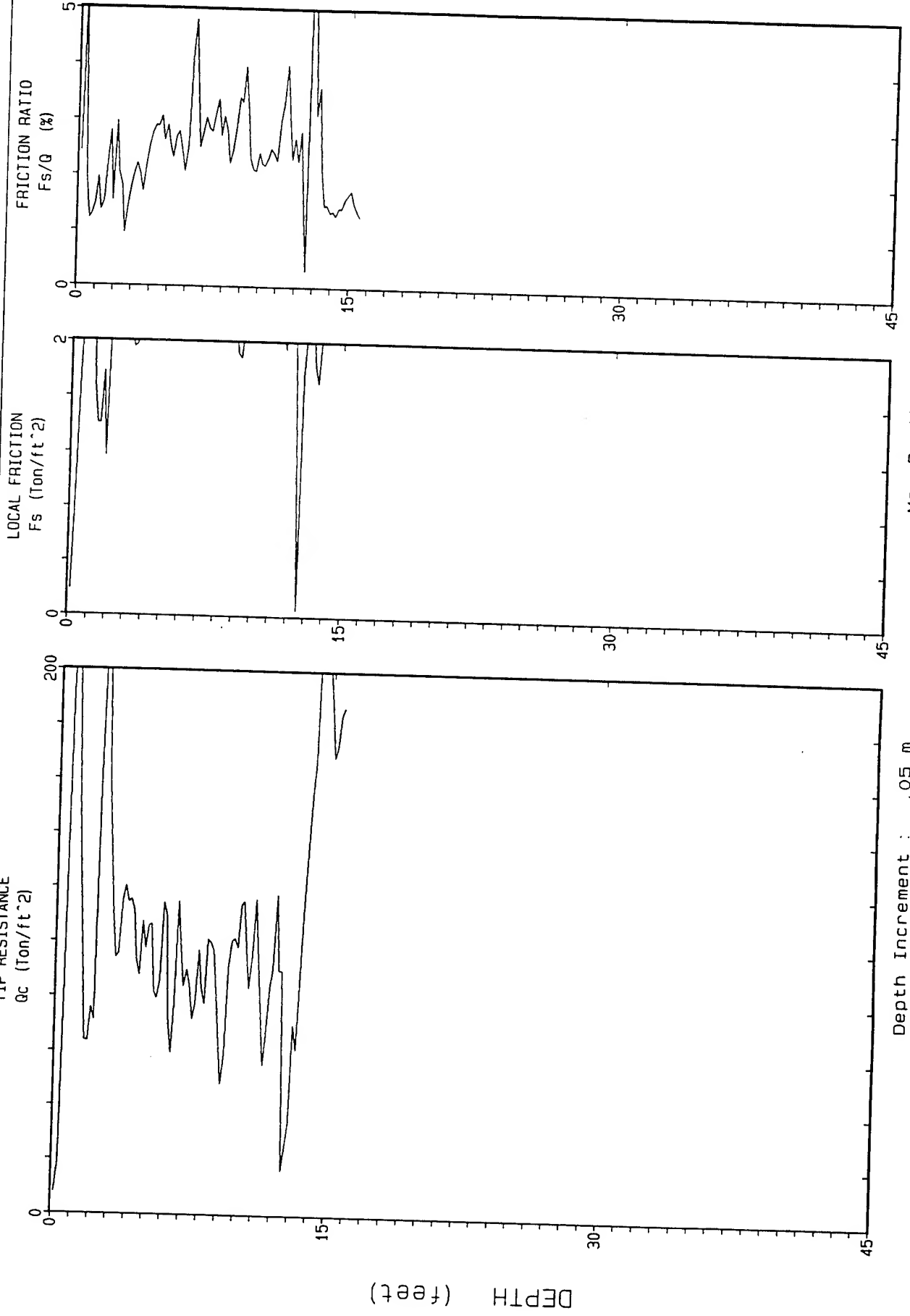
DATE : 08-12-92

DEPTH TO WATER : 23.45 FT BLS

SOUNDING NO. : CPT-34A Pg 1 / 1

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)



Depth Increment : .05 m

Max Depth : 15.58 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Test Date :A 08-12-92

Location : CPT-34

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.1

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	105.30	1.63	1.55	0.02	sand to silty sand	>90	>48	25	UNDEFINED
0.50	1.64	127.08	2.11	1.66	0.07	sand to silty sand	>90	>48	30	UNDEFINED
0.75	2.46	116.32	2.44	2.10	0.11	silty sand to sandy silt	>90	>48	37	UNDEFINED
1.00	3.28	143.78	2.21	1.53	0.16	sand to silty sand	>90	>48	34	UNDEFINED
1.25	4.10	112.36	2.53	2.25	0.20	silty sand to sandy silt	>90	>48	36	UNDEFINED
1.50	4.92	99.66	2.86	2.87	0.25	sandy silt to clayey silt	UNDFND	UNDFD	38	3.97
1.75	5.74	92.10	2.35	2.55	0.29	silty sand to sandy silt	80-90	44-46	29	UNDEFINED
2.00	6.56	86.72	2.75	3.18	0.34	sandy silt to clayey silt	UNDFND	UNDFD	33	3.45
2.25	7.38	94.28	2.63	2.79	0.38	sandy silt to clayey silt	UNDFND	UNDFD	36	3.75
2.50	8.20	81.64	2.46	3.01	0.43	sandy silt to clayey silt	UNDFND	UNDFD	31	3.24
2.75	9.02	88.52	2.47	2.79	0.47	sandy silt to clayey silt	UNDFND	UNDFD	34	3.52
3.00	9.84	80.28	2.04	2.54	0.52	sandy silt to clayey silt	UNDFND	UNDFD	31	3.19
3.25	10.66	101.78	2.37	2.32	0.56	silty sand to sandy silt	70-80	42-44	32	UNDEFINED
3.50	11.48	87.86	2.52	2.87	0.61	sandy silt to clayey silt	UNDFND	UNDFD	34	3.49
3.75	12.30	90.00	2.34	2.60	0.65	sandy silt to clayey silt	UNDFND	UNDFD	34	3.57
4.00	13.12	47.38	1.47	3.09	0.70	sandy silt to clayey silt	UNDFND	UNDFD	18	1.86
4.25	13.94	109.92	1.98	1.80	0.74	silty sand to sandy silt	70-80	42-44	35	UNDEFINED
4.50	14.76	205.22	2.96	1.44	0.79	sand to silty sand	>90	44-46	49	UNDEFINED
4.75	15.58	180.32	2.77	1.53	0.83	sand.to silty sand	80-90	44-46	43	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ***

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-12-92

SOUNDING NO. : CPT-34B Pg 1 / 1

LOCATION : BLDG. 870

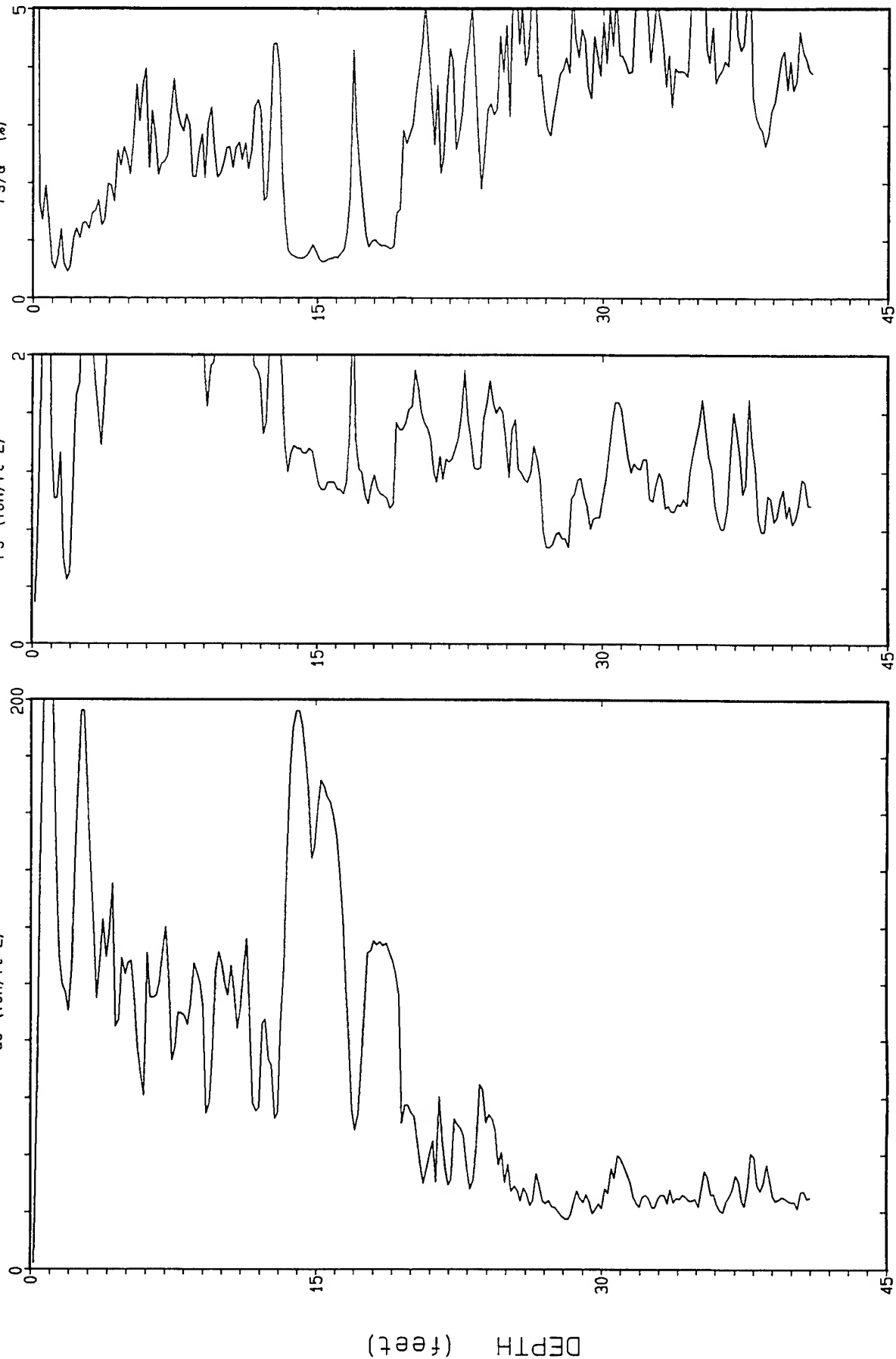
DEPTH TO WATER : 23.45 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Max Depth : 41.01 ft

05 m

Depth Increment :

Contractor : TERRA TECH SW

Test Date :B 08-12-92

Location : CPT-34

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 7.15

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	131.06	2.13	1.62	0.02	sand to silty sand	>90	>48	31	UNDEFINED
0.50	1.64	157.50	1.09	0.69	0.07	sand	>90	>48	30	UNDEFINED
0.75	2.46	121.62	1.12	0.92	0.11	sand to silty sand	>90	>48	29	UNDEFINED
1.00	3.28	164.84	2.23	1.35	0.16	sand to silty sand	>90	>48	39	UNDEFINED
1.25	4.10	110.94	1.84	1.66	0.20	silty sand to sandy silt	>90	>48	35	UNDEFINED
1.50	4.92	104.22	2.38	2.29	0.25	silty sand to sandy silt	80-90	46-48	33	UNDEFINED
1.75	5.74	91.24	2.74	3.00	0.29	sandy silt to clayey silt	UNDFND	UNDFD	35	3.63
2.00	6.56	91.82	2.56	2.79	0.34	sandy silt to clayey silt	UNDFND	UNDFD	35	3.65
2.25	7.38	101.42	2.82	2.78	0.38	sandy silt to clayey silt	UNDFND	UNDFD	39	4.04
2.50	8.20	86.42	2.66	3.08	0.43	sandy silt to clayey silt	UNDFND	UNDFD	33	3.44
2.75	9.02	99.34	2.34	2.35	0.47	silty sand to sandy silt	70-80	44-46	32	UNDEFINED
3.00	9.84	80.58	2.03	2.52	0.52	sandy silt to clayey silt	UNDFND	UNDFD	31	3.20
3.25	10.66	101.62	2.54	2.50	0.56	silty sand to sandy silt	70-80	42-44	32	UNDEFINED
3.50	11.48	96.78	2.44	2.52	0.61	silty sand to sandy silt	70-80	42-44	31	UNDEFINED
3.75	12.30	68.70	1.73	2.52	0.65	sandy silt to clayey silt	UNDFND	UNDFD	26	2.72
4.00	13.12	67.58	2.35	3.47	0.70	sandy silt to clayey silt	UNDFND	UNDFD	26	2.67
4.25	13.94	163.02	1.33	0.82	0.74	sand	80-90	44-46	31	UNDEFINED
4.50	14.76	175.64	1.34	0.77	0.79	sand	80-90	44-46	34	UNDEFINED
4.75	15.58	163.46	1.13	0.69	0.83	sand	80-90	42-44	31	UNDEFINED
5.00	16.40	147.70	1.09	0.74	0.88	sand	70-80	42-44	28	UNDEFINED
5.25	17.22	67.92	1.53	2.25	0.92	silty sand to sandy silt	50-60	38-40	22	UNDEFINED
5.50	18.04	100.26	1.10	1.10	0.97	sand to silty sand	60-70	40-42	24	UNDEFINED
5.75	18.86	113.78	1.03	0.91	1.01	sand to silty sand	70-80	40-42	27	UNDEFINED
6.00	19.69	83.32	1.41	1.69	1.06	silty sand to sandy silt	60-70	38-40	27	UNDEFINED
6.25	20.51	49.20	1.71	3.48	1.11	clayey silt to silty clay	UNDFND	UNDFD	24	1.92
6.50	21.33	36.08	1.36	3.77	1.15	clayey silt to silty clay	UNDFND	UNDFD	17	1.39
6.75	22.15	40.60	1.26	3.11	1.20	sandy silt to clayey silt	UNDFND	UNDFD	16	1.57
7.00	22.97	46.86	1.57	3.35	1.24	clayey silt to silty clay	UNDFND	UNDFD	22	1.82
7.25	23.79	45.80	1.33	2.91	1.29	sandy silt to clayey silt	UNDFND	UNDFD	18	1.78
7.50	24.61	48.50	1.69	3.48	1.31	clayey silt to silty clay	UNDFND	UNDFD	23	1.88
7.75	25.43	32.86	1.45	4.41	1.33	silty clay to clay	UNDFND	UNDFD	21	1.25
8.00	26.25	25.82	1.18	4.57	1.35	silty clay to clay	UNDFND	UNDFD	16	.97
8.25	27.07	26.82	1.06	3.94	1.37	silty clay to clay	UNDFND	UNDFD	17	1.01
8.50	27.89	21.30	0.74	3.46	1.39	clayey silt to silty clay	UNDFND	UNDFD	10	.79
8.75	28.71	21.00	0.93	4.42	1.41	clay	UNDFND	UNDFD	20	.77
9.00	29.53	23.44	0.97	4.15	1.42	silty clay to clay	UNDFND	UNDFD	15	.87
9.25	30.35	24.02	1.06	4.40	1.44	silty clay to clay	UNDFND	UNDFD	15	.89
9.50	31.17	36.34	1.60	4.40	1.46	silty clay to clay	UNDFND	UNDFD	23	1.38

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	26.88	1.24	4.63	1.48	silty clay to clay	UNDFND	UNDFD	17	1.00
10.00	32.81	23.86	1.14	4.79	1.50	clay	UNDFND	UNDFD	23	.85
10.25	33.63	25.54	1.04	4.07	1.52	silty clay to clay	UNDFND	UNDFD	16	.94
10.50	34.45	24.80	0.97	3.93	1.54	silty clay to clay	UNDFND	UNDFD	16	.91
10.75	35.27	24.44	1.44	5.89	1.56	clay	UNDFND	UNDFD	23	.9
11.00	36.09	28.30	1.18	4.16	1.58	silty clay to clay	UNDFND	UNDFD	18	1.0
11.25	36.91	23.40	1.09	4.68	1.60	clay	UNDFND	UNDFD	22	.85
11.50	37.73	27.66	1.33	4.82	1.62	clay	UNDFND	UNDFD	26	1.02
11.75	38.55	33.18	1.02	3.07	1.64	clayey silt to silty clay	UNDFND	UNDFD	16	1.2
12.00	39.37	28.20	0.97	3.43	1.66	clayey silt to silty clay	UNDFND	UNDFD	14	1.04
12.25	40.19	24.00	0.93	3.88	1.68	silty clay to clay	UNDFND	UNDFD	15	.87
12.50	41.01	24.92	1.04	4.17	1.70	silty clay to clay	UNDFND	UNDFD	16	.9

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 25

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

DATE : 08-13-92

SOUNDING NO. : CPT-35 Pg 1 / 1

LOCATION : BLDG. 870

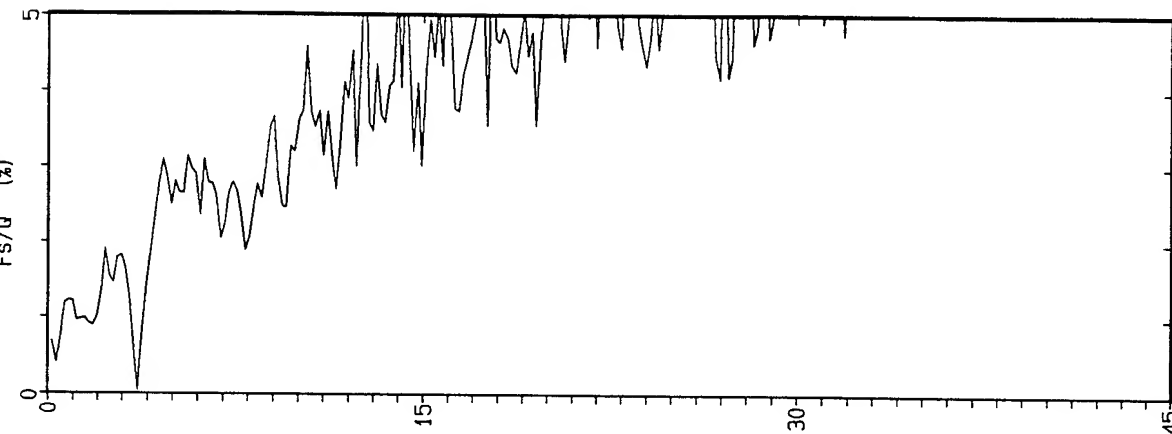
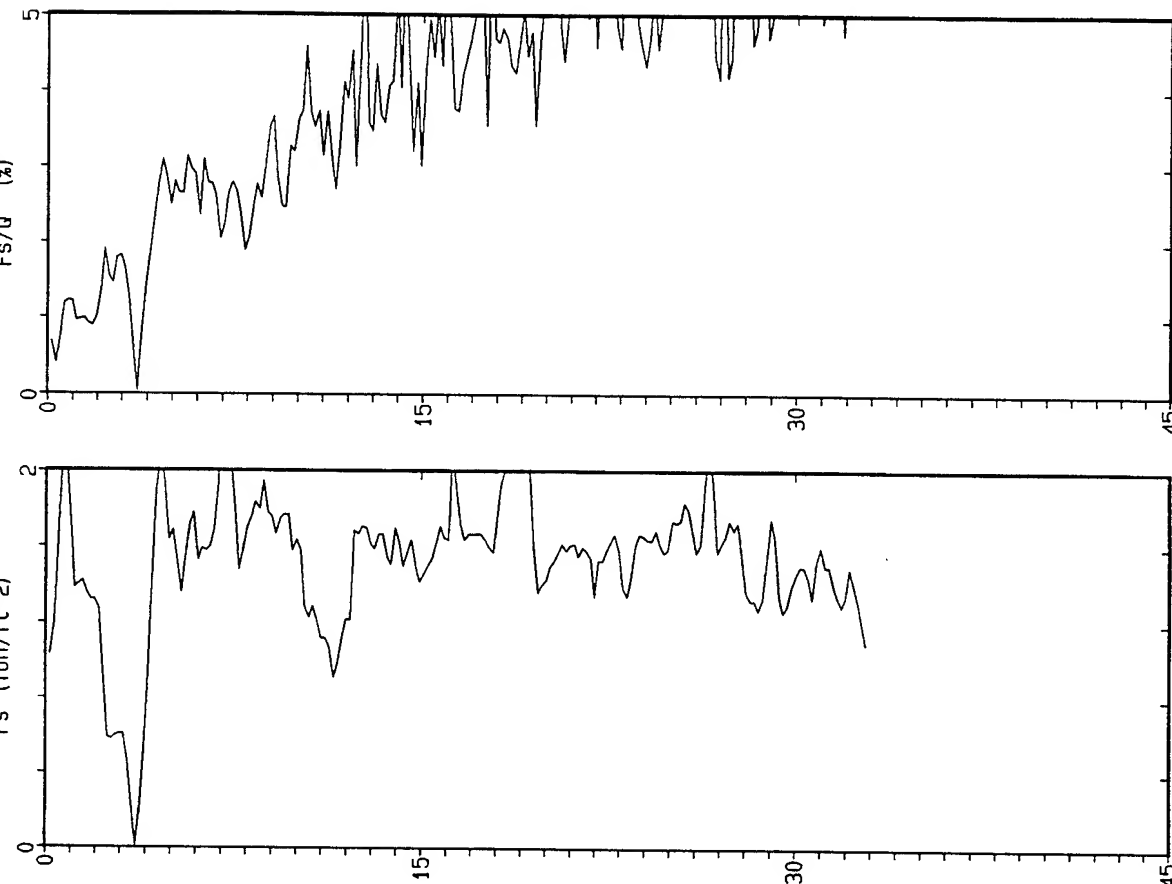
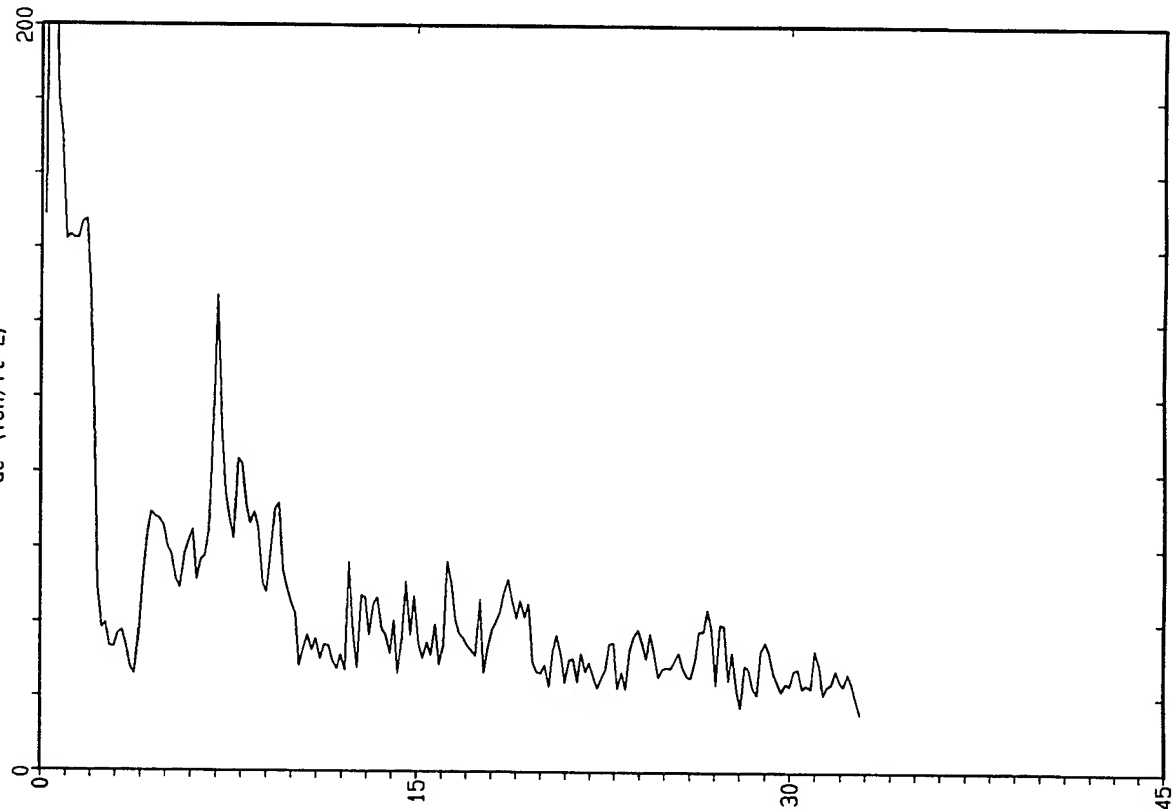
DEPTH TO WATER : 36.08 FT BLS

TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

LOCAL FRICTION
 F_s (Ton/ft²)

FRICTION RATIO
 F_s/Q (%)



Depth Increment : .05 m

Max Depth : 32.81 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW
 Location : CPT-35
 Job No. : 92-1016
 Tot. Unit Wt. (avg) : 110 pcf

Test Date : 08-13-92
 Elevation : UNKNOWN
 Water table (meters) : 11

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	205.62	1.62	0.79	0.02	sand	>90	>48	39	UNDEFINED
0.50	1.64	143.52	1.46	1.02	0.07	sand to silty sand	>90	>48	34	UNDEFINED
0.75	2.46	92.12	1.09	1.18	0.11	sand to silty sand	>90	>48	22	UNDEFINED
1.00	3.28	36.14	0.57	1.58	0.16	silty sand to sandy silt	60-70	44-46	12	UNDEFINED
1.25	4.10	34.86	0.38	1.08	0.20	silty sand to sandy silt	50-60	42-44	11	UNDEFINED
1.50	4.92	66.72	1.82	2.72	0.25	sandy silt to clayey silt	UNDFND	UNDFD	26	3.3
1.75	5.74	55.24	1.57	2.84	0.29	sandy silt to clayey silt	UNDFND	UNDFD	21	2.7
2.00	6.56	58.32	1.62	2.77	0.34	sandy silt to clayey silt	UNDFND	UNDFD	22	2.89
2.25	7.38	90.72	2.20	2.43	0.38	silty sand to sandy silt	70-80	44-46	29	UNDEFINED
2.50	8.20	73.32	1.67	2.27	0.43	silty sand to sandy silt	60-70	42-44	23	UNDEFINED
2.75	9.02	59.80	1.83	3.05	0.47	sandy silt to clayey silt	UNDFND	UNDFD	23	2.96
3.00	9.84	60.66	1.71	2.82	0.52	sandy silt to clayey silt	UNDFND	UNDFD	23	3.00
3.25	10.66	36.98	1.41	3.80	0.56	clayey silt to silty clay	UNDFND	UNDFD	18	1.4
3.50	11.48	33.04	1.09	3.29	0.61	clayey silt to silty clay	UNDFND	UNDFD	16	1.6
3.75	12.30	34.24	1.25	3.64	0.65	clayey silt to silty clay	UNDFND	UNDFD	16	1.67
4.00	13.12	38.98	1.66	4.25	0.70	silty clay to clay	UNDFND	UNDFD	25	1.9
4.25	13.94	39.52	1.62	4.10	0.74	clayey silt to silty clay	UNDFND	UNDFD	19	1.9
4.50	14.76	37.96	1.57	4.13	0.79	clayey silt to silty clay	UNDFND	UNDFD	18	1.85
4.75	15.58	35.42	1.51	4.26	0.83	silty clay to clay	UNDFND	UNDFD	23	1.72
5.00	16.40	41.72	1.80	4.32	0.88	silty clay to clay	UNDFND	UNDFD	27	2.0
5.25	17.22	35.92	1.67	4.66	0.92	silty clay to clay	UNDFND	UNDFD	23	1.75
5.50	18.04	34.92	1.65	4.71	0.97	silty clay to clay	UNDFND	UNDFD	22	1.69
5.75	18.86	45.68	2.07	4.53	1.01	silty clay to clay	UNDFND	UNDFD	29	2.2
6.00	19.69	40.54	1.82	4.48	1.06	silty clay to clay	UNDFND	UNDFD	26	1.9
6.25	20.51	27.34	1.49	5.44	1.11	clay	UNDFND	UNDFD	26	1.31
6.50	21.33	30.42	1.60	5.25	1.15	clay	UNDFND	UNDFD	29	1.4
6.75	22.15	27.52	1.52	5.52	1.20	clay	UNDFND	UNDFD	26	1.3
7.00	22.97	28.68	1.60	5.57	1.24	clay	UNDFND	UNDFD	27	1.37
7.25	23.79	28.08	1.49	5.31	1.29	clay	UNDFND	UNDFD	27	1.33
7.50	24.61	34.58	1.65	4.77	1.33	silty clay to clay	UNDFND	UNDFD	22	1.6
7.75	25.43	27.72	1.67	6.04	1.38	clay	UNDFND	UNDFD	27	1.3
8.00	26.25	28.16	1.70	6.04	1.42	clay	UNDFND	UNDFD	27	1.33
8.25	27.07	36.00	1.84	5.10	1.47	clay	UNDFND	UNDFD	34	1.7
8.50	27.89	31.44	1.67	5.31	1.51	clay	UNDFND	UNDFD	30	1.4
8.75	28.71	23.34	1.32	5.66	1.56	clay	UNDFND	UNDFD	22	1.08
9.00	29.53	29.94	1.50	5.02	1.60	clay	UNDFND	UNDFD	29	1.4
9.25	30.35	24.62	1.43	5.79	1.65	clay	UNDFND	UNDFD	24	1.1
9.50	31.17	25.86	1.48	5.72	1.69	clay	UNDFND	UNDFD	25	1.20

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 20

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870

Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	23.76	1.37	5.78	1.74	clay clay	UNDFND	UNDFD	23	1.10
10.00	32.81	21.46	1.30	6.06	1.78		UNDFND	UNDFD	21	.98

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 20

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

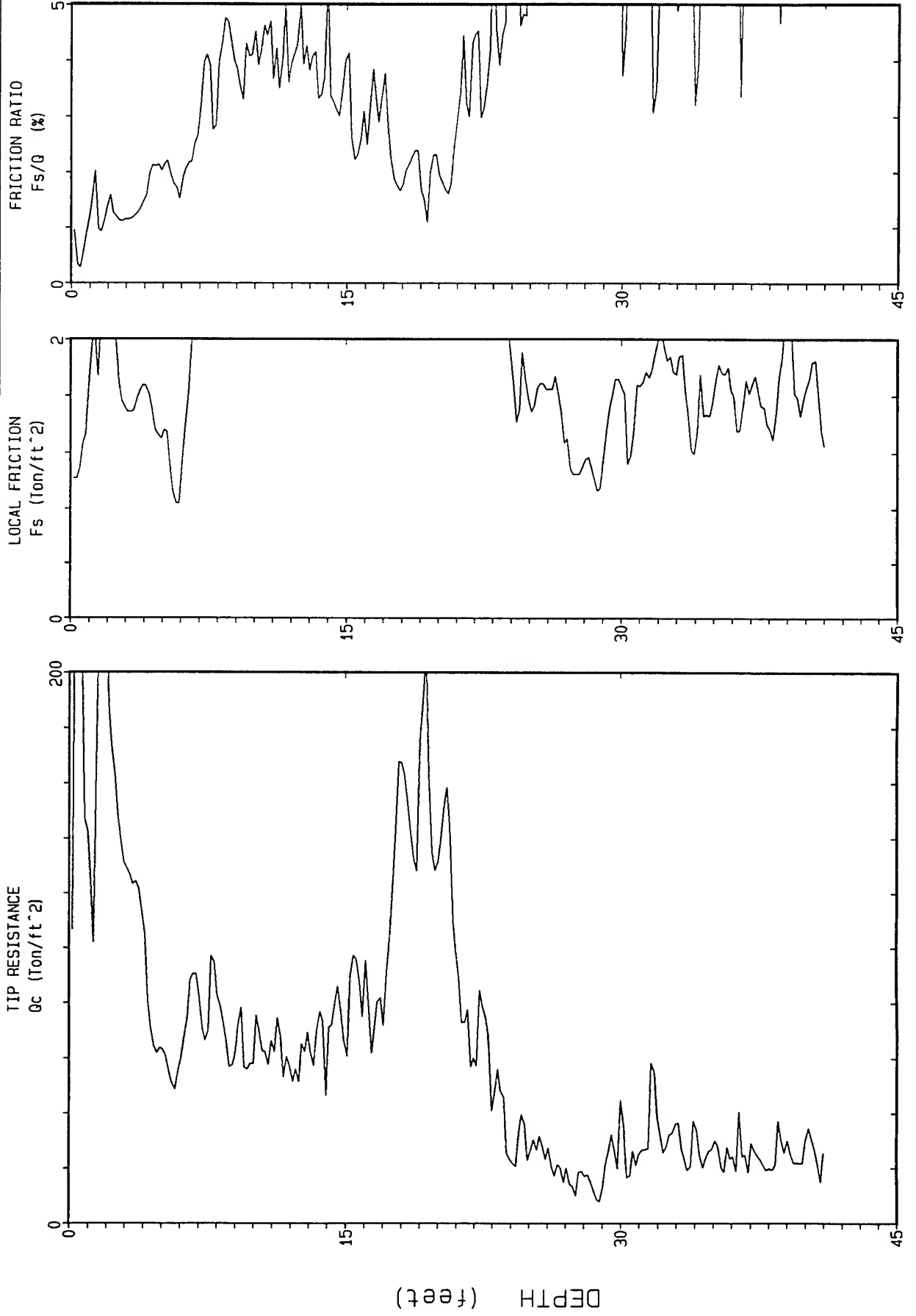
DATE : 08-13-92

SOUNDING NO. : CPT-36 Pg 1 / 1

LOCATION : BLDG. 870

DEPTH TO WATER : 34.11 FT BLS

TERRA JOB NO. : 92-1016



Contractor : TERRA TECH SW

Test Date : 08-13-92

Location : CPT-36

Elevation : UNKNOWN.

Job No. : 92-1016

Water table (meters) : 10.4

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	228.58	1.15	0.50	0.02	sand	>90	UNDFD	44	UNDEFINED
0.50	1.64	154.98	1.93	1.25	0.07	sand to silty sand	>90	>48	37	UNDEFINED
0.75	2.46	204.98	2.69	1.31	0.11	sand to silty sand	>90	>48	49	UNDEFINED
1.00	3.28	135.54	1.55	1.15	0.16	sand to silty sand	>90	>48	32	UNDEFINED
1.25	4.10	117.72	1.61	1.37	0.20	sand to silty sand	>90	>48	28	UNDEFINED
1.50	4.92	68.42	1.42	2.08	0.25	silty sand to sandy silt	70-80	44-46	22	UNDEFINED
1.75	5.74	55.78	1.11	1.99	0.29	silty sand to sandy silt	60-70	42-44	18	UNDEFINED
2.00	6.56	69.00	1.39	2.01	0.34	silty sand to sandy silt	70-80	44-46	22	UNDEFINED
2.25	7.38	80.54	2.59	3.22	0.38	sandy silt to clayey silt	UNDFND	UNDFD	31	3.48
2.50	8.20	84.92	2.97	3.50	0.43	sandy silt to clayey silt	UNDFND	UNDFD	33	3.67
2.75	9.02	63.06	2.75	4.37	0.47	clayey silt to silty clay	UNDFND	UNDFD	30	2.72
3.00	9.84	64.18	2.45	3.82	0.52	clayey silt to silty clay	UNDFND	UNDFD	31	2.76
3.25	10.66	65.80	2.84	4.32	0.56	clayey silt to silty clay	UNDFND	UNDFD	32	2.83
3.50	11.48	65.74	2.63	4.00	0.61	clayey silt to silty clay	UNDFND	UNDFD	31	2.83
3.75	12.30	55.72	2.33	4.19	0.65	clayey silt to silty clay	UNDFND	UNDFD	27	2.39
4.00	13.12	62.14	2.60	4.19	0.70	clayey silt to silty clay	UNDFND	UNDFD	30	2.67
4.25	13.94	64.82	2.52	3.89	0.74	clayey silt to silty clay	UNDFND	UNDFD	31	2.78
4.50	14.76	77.18	2.51	3.26	0.79	sandy silt to clayey silt	UNDFND	UNDFD	30	3.32
4.75	15.58	82.18	2.39	2.91	0.83	sandy silt to clayey silt	UNDFND	UNDFD	31	3.53
5.00	16.40	80.10	2.38	2.97	0.88	sandy silt to clayey silt	UNDFND	UNDFD	31	3.44
5.25	17.22	79.42	2.56	3.23	0.92	sandy silt to clayey silt	UNDFND	UNDFD	30	3.41
5.50	18.04	141.40	2.60	1.84	0.97	silty sand to sandy silt	70-80	42-44	45	UNDEFINED
5.75	18.86	143.72	3.21	2.23	1.01	silty sand to sandy silt	70-80	42-44	46	UNDEFINED
6.00	19.69	174.20	2.89	1.66	1.06	sand to silty sand	80-90	42-44	42	UNDEFINED
6.25	20.51	142.16	2.65	1.87	1.11	silty sand to sandy silt	70-80	42-44	45	UNDEFINED
6.50	21.33	103.22	2.91	2.82	1.15	sandy silt to clayey silt	UNDFND	UNDFD	40	4.43
6.75	22.15	65.00	2.49	3.83	1.20	clayey silt to silty clay	UNDFND	UNDFD	31	2.77
7.00	22.97	69.50	2.71	3.90	1.24	clayey silt to silty clay	UNDFND	UNDFD	33	2.96
7.25	23.79	44.44	2.15	4.84	1.29	silty clay to clay	UNDFND	UNDFD	28	1.87
7.50	24.61	27.52	1.69	6.13	1.33	clay	UNDFND	UNDFD	26	1.13
7.75	25.43	28.36	1.60	5.63	1.38	clay	UNDFND	UNDFD	27	1.17
8.00	26.25	26.24	1.67	6.35	1.42	clay	UNDFND	UNDFD	25	1.07
8.25	27.07	18.76	1.48	7.90	1.47	clay	UNDFND	UNDFD	18	.75
8.50	27.89	14.94	1.07	7.15	1.51	clay	UNDFND	UNDFD	14	.58
8.75	28.71	14.06	1.07	7.64	1.56	clay	UNDFND	UNDFD	13	.54
9.00	29.53	20.20	1.32	6.53	1.60	clay	UNDFND	UNDFD	19	.80
9.25	30.35	28.66	1.57	5.47	1.65	clay	UNDFND	UNDFD	27	1.17
9.50	31.17	23.20	1.51	6.53	1.69	clay	UNDFND	UNDFD	22	.93

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 23

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ***

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	41.12	1.84	4.47	1.74	silty clay to clay	UNDFND	UNDFD	26	1.7
10.00	32.81	30.08	1.90	6.32	1.78	clay	UNDFND	UNDFD	29	1.2
10.25	33.63	28.24	1.73	6.12	1.83	clay	UNDFND	UNDFD	27	1.14
10.50	34.45	27.32	1.39	5.10	1.87	clay	UNDFND	UNDFD	26	1.10
10.75	35.27	26.88	1.60	5.96	1.89	clay	UNDFND	UNDFD	26	1.0
11.00	36.09	22.84	1.71	7.49	1.91	clay	UNDFND	UNDFD	22	.9
11.25	36.91	25.26	1.51	5.99	1.93	clay	UNDFND	UNDFD	24	1.01
11.50	37.73	24.78	1.62	6.55	1.95	clay	UNDFND	UNDFD	24	.9
11.75	38.55	23.18	1.45	6.27	1.97	clay	UNDFND	UNDFD	22	.9
12.00	39.37	26.52	2.01	7.57	1.99	clay	UNDFND	UNDFD	25	1.06
12.25	40.19	25.84	1.60	6.18	2.01	clay	UNDFND	UNDFD	25	1.02
12.50	41.01	23.80	1.58	6.65	2.03	clay	UNDFND	UNDFD	23	.9

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 23

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

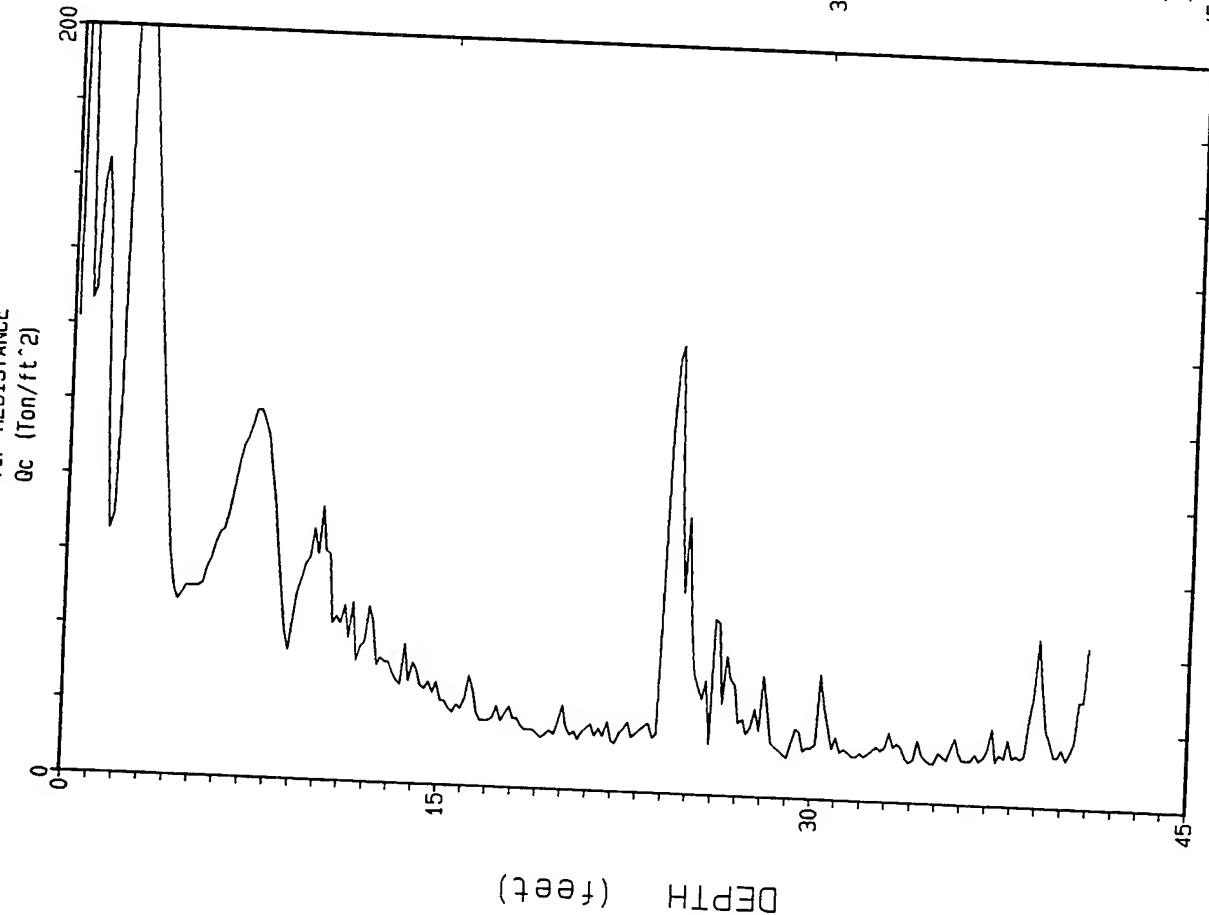
DATE : 08-15-92

DEPTH TO WATER : 13.12 FT BLS

SOUNDING NO. : CPT-38 Pg 1 / 1

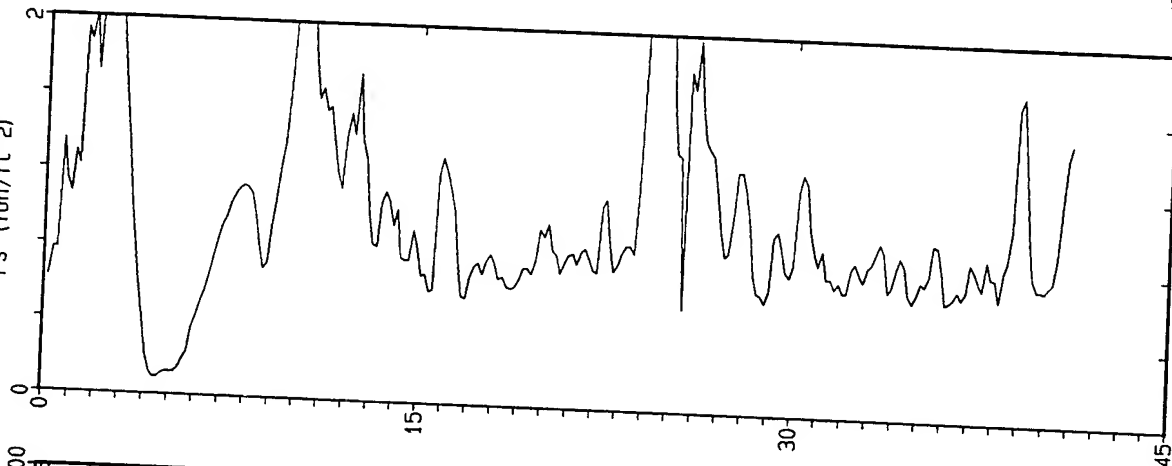
TERRA JOB NO. : 92-1016

TIP RESISTANCE
 Q_c (Ton/ft²)

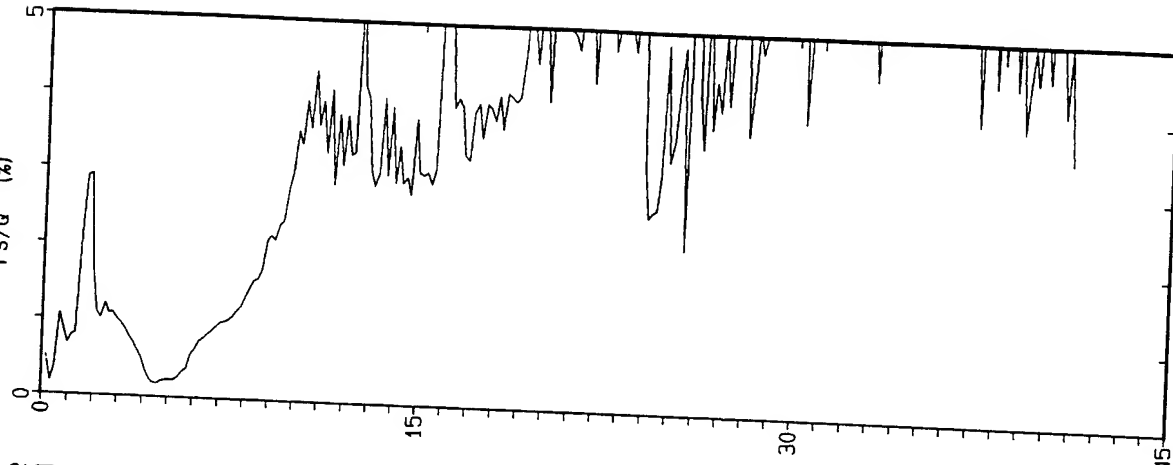


Depth Increment : .05 m

LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/Q (%)



Max Depth : 41.01 ft

Contractor : TERRA TECH SW

Test Date : 08-15-92

Location : CPT-38

Elevation : UNKNOWN

Job No. : 92-1016

Water table (meters) : 4

Tot. Unit Wt. (avg) : 110 pcf

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	201.62	0.93	0.46	0.02	sand	>90	>48	39	UNDEFINED
0.50	1.64	125.84	1.48	1.18	0.07	sand to silty sand	>90	>48	30	UNDEFINED
0.75	2.46	178.44	2.36	1.32	0.11	sand to silty sand	>90	>48	43	UNDEFINED
1.00	3.28	186.06	1.91	1.03	0.16	sand	>90	>48	36	UNDEFINED
1.25	4.10	92.34	0.59	0.64	0.20	sand to silty sand	80-90	46-48	22	UNDEFINED
1.50	4.92	49.28	0.11	0.22	0.25	sand to silty sand	60-70	44-46	12	UNDEFINED
1.75	5.74	53.34	0.16	0.30	0.29	sand to silty sand	60-70	42-44	13	UNDEFINED
2.00	6.56	68.36	0.50	0.73	0.34	sand to silty sand	70-80	44-46	16	UNDEFINED
2.25	7.38	90.98	0.90	0.98	0.38	sand to silty sand	70-80	44-46	22	UNDEFINED
2.50	8.20	88.46	1.11	1.25	0.43	sand to silty sand	70-80	44-46	21	UNDEFINED
2.75	9.02	45.76	0.82	1.80	0.47	silty sand to sandy silt	50-60	40-42	15	UNDEFINED
3.00	9.84	57.48	1.47	2.55	0.52	sandy silt to clayey silt	UNDFND	UNDFD	22	2.83
3.25	10.66	59.44	2.21	3.72	0.56	clayey silt to silty clay	UNDFND	UNDFD	28	2.00
3.50	11.48	43.64	1.55	3.54	0.61	clayey silt to silty clay	UNDFND	UNDFD	21	1.53
3.75	12.30	38.96	1.34	3.44	0.65	clayey silt to silty clay	UNDFND	UNDFD	19	1.36
4.00	13.12	31.54	1.25	3.96	0.70	clayey silt to silty clay	UNDFND	UNDFD	15	1.00
4.25	13.94	30.00	1.00	3.35	0.73	clayey silt to silty clay	UNDFND	UNDFD	14	1.00
4.50	14.76	26.70	0.85	3.18	0.75	clayey silt to silty clay	UNDFND	UNDFD	13	0.92
4.75	15.58	22.42	0.68	3.05	0.77	clayey silt to silty clay	UNDFND	UNDFD	11	0.92
5.00	16.40	23.96	1.19	4.97	0.79	clay	UNDFND	UNDFD	23	0.92
5.25	17.22	18.10	0.67	3.69	0.81	silty clay to clay	UNDFND	UNDFD	12	0.61
5.50	18.04	19.66	0.76	3.87	0.83	silty clay to clay	UNDFND	UNDFD	13	0.61
5.75	18.86	16.38	0.66	4.00	0.85	silty clay to clay	UNDFND	UNDFD	10	0.61
6.00	19.69	14.60	0.73	5.01	0.87	clay	UNDFND	UNDFD	14	0.48
6.25	20.51	17.34	0.90	5.19	0.89	clay	UNDFND	UNDFD	17	0.57
6.50	21.33	15.58	0.78	5.03	0.91	clay	UNDFND	UNDFD	15	0.57
6.75	22.15	15.20	0.79	5.22	0.93	clay	UNDFND	UNDFD	15	0.57
7.00	22.97	16.18	0.92	5.69	0.95	clay	UNDFND	UNDFD	15	0.53
7.25	23.79	16.56	0.92	5.58	0.97	clay	UNDFND	UNDFD	16	0.53
7.50	24.61	93.50	2.62	2.80	0.98	sandy silt to clayey silt	UNDFND	UNDFD	36	3.20
7.75	25.43	46.74	1.89	4.04	1.00	clayey silt to silty clay	UNDFND	UNDFD	22	1.62
8.00	26.25	32.34	1.53	4.74	1.02	silty clay to clay	UNDFND	UNDFD	21	1.10
8.25	27.07	28.26	1.27	4.51	1.04	silty clay to clay	UNDFND	UNDFD	18	0.90
8.50	27.89	19.30	1.07	5.52	1.06	clay	UNDFND	UNDFD	18	0.65
8.75	28.71	19.28	0.85	4.41	1.08	clay	UNDFND	UNDFD	18	0.63
9.00	29.53	14.60	0.82	5.60	1.10	clay	UNDFND	UNDFD	14	0.40
9.25	30.35	17.52	0.96	5.49	1.12	clay	UNDFND	UNDFD	17	0.50
9.50	31.17	17.36	0.96	5.55	1.14	clay	UNDFND	UNDFD	17	0.55

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 28

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) *

Contractor : TERRA TECH SW Location : BLDG. 870

Page No. 2

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
9.75	31.99	12.48	0.71	5.71	1.16					
10.00	32.81	13.24	0.76	5.74	1.18	clay	UNDFND	UNDFD	12	.38
10.25	33.63	15.58	0.87	5.60	1.20	clay	UNDFND	UNDFD	13	.40
10.50	34.45	12.68	0.78	6.14	1.22	clay	UNDFND	UNDFD	15	.49
10.75	35.27	11.88	0.69	5.77	1.24	clay	UNDFND	UNDFD	12	.38
11.00	36.09	13.82	0.82	5.92	1.26	clay	UNDFND	UNDFD	11	.35
11.25	36.91	12.28	0.67	5.47	1.28	clay	UNDFND	UNDFD	13	.42
11.50	37.73	14.62	0.80	5.46	1.30	clay	UNDFND	UNDFD	12	.36
11.75	38.55	14.02	0.78	5.53	1.32	clay	UNDFND	UNDFD	14	.44
12.00	39.37	30.00	1.38	4.61	1.34	clay	UNDFND	UNDFD	13	.42
12.25	40.19	14.60	0.74	5.04	1.36	silty clay to clay	UNDFND	UNDFD	19	.99
12.50	41.01	26.28	1.15	4.37	1.37	clay	UNDFND	UNDFD	14	.44
						silty clay to clay	UNDFND	UNDFD	17	.85

Dr - All sands (Jamiolkowski et al. 1985)

PHI -

Robertson and Campanella 1983

Su: Nk= 28

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) **

HILL AIR FORCE BASE

CONTRACTOR : TERRA TECH SW

LOCATION : BLDG. 870

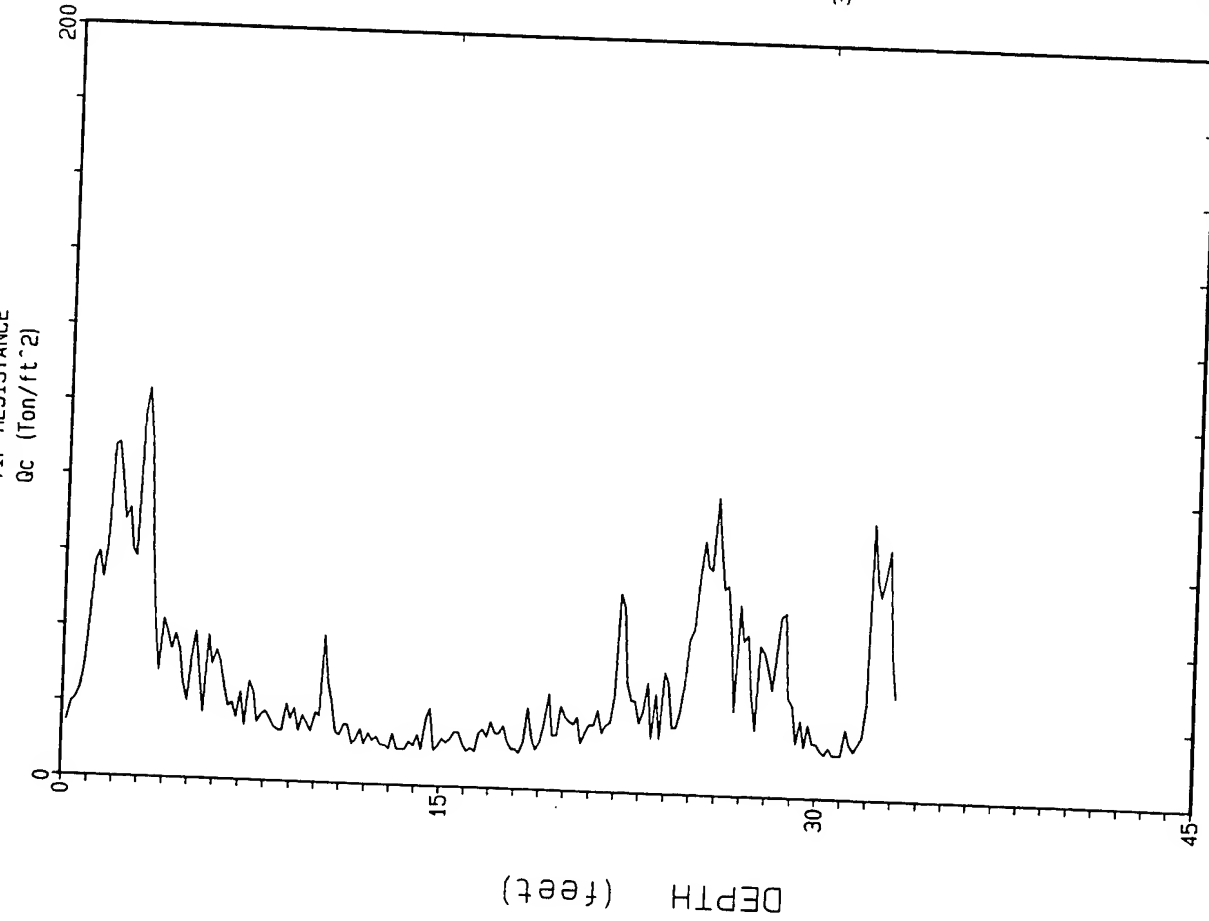
DATE : 08-15-92

DEPTH TO WATER : 24.60 FT BLS

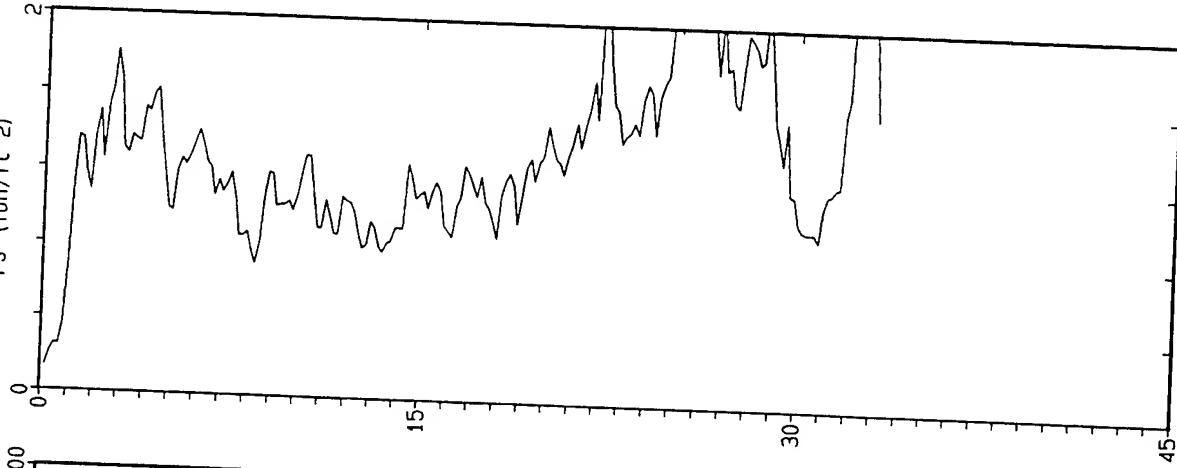
SOUNDING NO. : CPT-39 Pg 1 / 1

TERRA JOB NO. : 92-1016

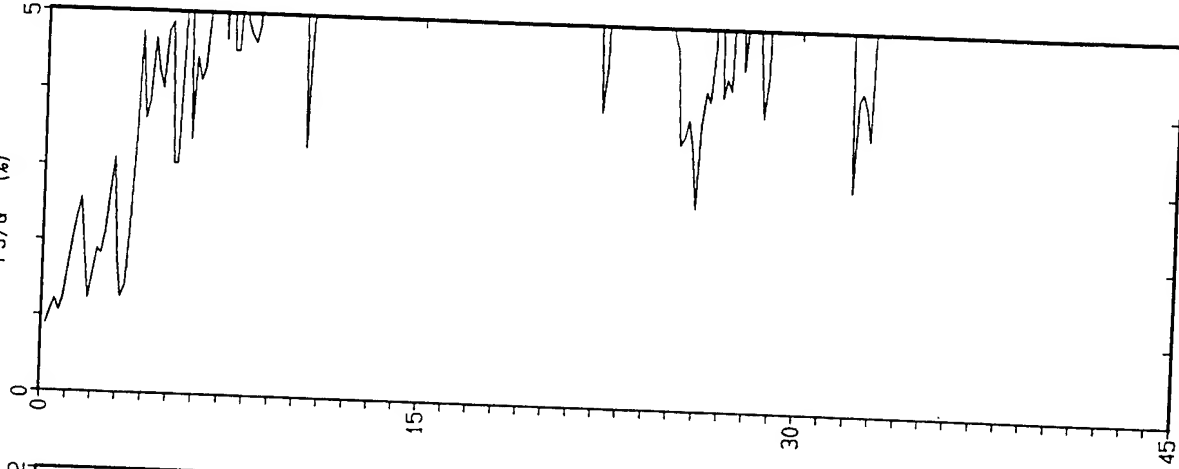
TIP RESISTANCE
 Q_c (Ton/ft²)



LOCAL FRICTION
 F_s (Ton/ft²)



FRICTION RATIO
 F_s/q (%)



Depth Increment : .05 m

Max Depth : 33.14 ft

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW

Location : CPT-39

Job No. : 92-1016

Tot. Unit Wt. (avg) : 110 pcf

Test Date : 08-15-92

Elevation : UNKNOWN

Water table (meters) : 7.5

DEPTH (meters)	DEPTH (feet)	Qc (avg) (tsf)	Fs (avg) (tsf)	Rf (avg) (%)	SIGV' (tsf)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su tsf
0.25	0.82	21.44	0.24	1.12	0.02	sandy silt to clayey silt	UNDFND	UNDFD	8	1.02
0.50	1.64	54.56	1.14	2.10	0.07	sandy silt to clayey silt	UNDFND	UNDFD	21	2.59
0.75	2.46	78.90	1.34	1.70	0.11	silty sand to sandy silt	>90	>48	25	UNDEFINED
1.00	3.28	81.42	1.54	1.89	0.16	silty sand to sandy silt	80-90	46-48	26	UNDEFINED
1.25	4.10	42.08	1.42	3.37	0.20	clayey silt to silty clay	UNDFND	UNDFD	20	1.99
1.50	4.92	30.40	1.36	4.46	0.25	silty clay to clay	UNDFND	UNDFD	19	1.43
1.75	5.74	30.78	1.19	3.86	0.29	clayey silt to silty clay	UNDFND	UNDFD	15	1.45
2.00	6.56	27.88	1.31	4.70	0.34	clay	UNDFND	UNDFD	27	1.31
2.25	7.38	20.28	1.13	5.55	0.38	clay	UNDFND	UNDFD	19	.94
2.50	8.20	18.32	0.89	4.84	0.43	clay	UNDFND	UNDFD	18	.85
2.75	9.02	15.78	1.00	6.32	0.47	clay	UNDFND	UNDFD	15	.72
3.00	9.84	15.96	1.03	6.43	0.52	clay	UNDFND	UNDFD	15	.73
3.25	10.66	24.54	1.19	4.86	0.56	clay	UNDFND	UNDFD	24	1.14
3.50	11.48	13.64	0.95	6.95	0.61	clay	UNDFND	UNDFD	13	.62
3.75	12.30	12.46	1.01	8.14	0.65	undefined	UNDFND	UNDFD	UDF	UNDEFINED
4.00	13.12	11.48	0.88	7.65	0.70	clay	UNDFND	UNDFD	11	.51
4.25	13.94	10.30	0.84	8.19	0.74	undefined	UNDFND	UNDFD	UDF	UNDEFINED
4.50	14.76	14.20	1.08	7.58	0.79	clay	UNDFND	UNDFD	14	.63
4.75	15.58	12.48	1.11	8.88	0.83	undefined	UNDFND	UNDFD	UDF	UNDEFINED
5.00	16.40	11.28	0.98	8.69	0.88	undefined	UNDFND	UNDFD	UDF	UNDEFINED
5.25	17.22	15.18	1.17	7.68	0.92	clay	UNDFND	UNDFD	15	.67
5.50	18.04	13.06	1.03	7.90	0.97	clay	UNDFND	UNDFD	13	.57
5.75	18.86	13.62	1.13	8.30	1.01	undefined	UNDFND	UNDFD	UDF	UNDEFINED
6.00	19.69	16.94	1.23	7.28	1.06	clay	UNDFND	UNDFD	16	.75
6.25	20.51	19.48	1.36	6.97	1.11	clay	UNDFND	UNDFD	19	.87
6.50	21.33	16.94	1.36	8.05	1.15	undefined	UNDFND	UNDFD	UDF	UNDEFINED
6.75	22.15	25.90	1.67	6.45	1.20	clay	UNDFND	UNDFD	25	1.17
7.00	22.97	29.04	1.72	5.91	1.24	clay	UNDFND	UNDFD	28	1.32
7.25	23.79	21.22	1.50	7.06	1.29	clay	UNDFND	UNDFD	20	.94
7.50	24.61	23.54	1.64	6.96	1.33	clay	UNDFND	UNDFD	23	1.05
7.75	25.43	47.52	2.05	4.31	1.36	clayey silt to silty clay	UNDFND	UNDFD	23	2.19
8.00	26.25	63.88	2.26	3.54	1.38	clayey silt to silty clay	UNDFND	UNDFD	31	2.97
8.25	27.07	42.26	1.98	4.69	1.40	silty clay to clay	UNDFND	UNDFD	27	1.94
8.50	27.89	33.12	1.76	5.32	1.42	clay	UNDFND	UNDFD	32	1.50
8.75	28.71	39.34	1.94	4.93	1.44	silty clay to clay	UNDFND	UNDFD	25	1.79
9.00	29.53	19.88	1.54	7.74	1.46	clay	UNDFND	UNDFD	19	.87
9.25	30.35	14.62	1.04	7.11	1.48	clay	UNDFND	UNDFD	14	.61
9.50	31.17	13.44	1.01	7.50	1.50	clay	UNDFND	UNDFD	13	.55

Dr - All sands (Jamiolkowski et al. 1985)

PHI - Robertson and Campanella 1983

Su: Nk= 21

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02) ****

1 HILL AIRFORCE BASE - BUILDING 870

0

Contractor : TERRA TECH SW Location : BLDG. 870 Page No. 2

DEPTH		Qc (avg)	Fs (avg)	Rf (avg)	SIGV'	SOIL BEHAVIOUR TYPE	Eq - Dr	PHI	SPT	Su
(meters)	(feet)	(tsf)	(tsf)	(%)	(tsf)		(%)	deg.	N	tsf
9.75	31.99	16.76	1.36	8.10	1.52	undefined	UNDFND	UNDFD	UDF	UNDEFIN
10.00	32.81	62.14	2.33	3.74	1.54	clayey silt to silty clay	UNDFND	UNDFD	30	2.

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 21

**** Note: For interpretation purposes the PLOTTED CPT PROFILE should be used with the TABULATED OUTPUT from CPTINTR1 (v 3.02)

APPENDIX B

CPT SUMMARY REPORT

GROUND-WATER ANALYTICAL DATA

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 57
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-01
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/05/92
 SUBMITTAL DATE: 08/07/92
 ANALYSIS DATE : 08/07/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.741	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-01

PROJECT NO. : 92-1016
 SAMPLE NO. : 57
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	N/A	mg/L	0.005
Hexachlorobutadiene	< 0.005	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene	N/A	mg/L	0.005
(Tetrachloroethylene)	0.425	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	2.273	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.540	mg/L	0.005
o-Xylene	0.487	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 39
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-02
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/05/92
 SUBMITTAL DATE: 08/05/92
 ANALYSIS DATE : 08/06/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	5.203	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-02

PROJECT NO. : 92-1016
 SAMPLE NO. : 39
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.740	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	3.809	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	7.578	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	1.903	mg/L	0.005
o-Xylene	2.274	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 90
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-03
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/10/92
 SUBMITTAL DATE: 08/10/92
 ANALYSIS DATE : 08/10/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	2.701	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-03

PROJECT NO. : 92-1016
 SAMPLE NO. : 90
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	N/A	mg/L	0.005
Hexachlorobutadiene	0.322	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene	N/A	mg/L	0.005
(Tetrachloroethylene)	2.447	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	3.112	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.801	mg/L	0.005
o-Xylene	0.854	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124
 Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 15
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-04
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/05/92
 SUBMITTAL DATE: 08/05/92
 ANALYSIS DATE : 08/05/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-04

PROJECT NO. : 92-1016
 SAMPLE NO. : 15
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery	PROJECT NO. : 92-1016
4525 S. Wasatch Blvd.	SAMPLE NO. : 14
SLC, Utah 84124	REPORT DATE : 10/09/92
	REVIEWED BY : RAK
Attn: David A. Fulton	PAGE : 1 OF 2

CLIENT ID NO. : None	AUTHORIZED BY : DAF
SAMPLE MATRIX : Ground Water	CLIENT P.O. : None
SAMPLED BY : NKT/RAK	SAMPLE DATE : 08/05/92
SAMPLE SOURCE : TP-05	SUBMITTAL DATE: 08/05/92
ANALYST : NKT	ANALYSIS DATE : 08/05/92

Organic Monitoring-Drinking Water Volatiles
Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-05

PROJECT NO. : 92-1016
 SAMPLE NO. : 14
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124
 Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 42
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-06
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/05/92
 SUBMITTAL DATE: 08/05/92
 ANALYSIS DATE : 08/07/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-06

PROJECT NO. : 92-1016
 SAMPLE NO. : 42
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery	PROJECT NO. : 92-1016
4525 S. Wasatch Blvd.	SAMPLE NO. : 26
SLC, Utah 84124	REPORT DATE : 10/09/92
Attn: David A. Fulton	REVIEWED BY : RAK
	PAGE : 1 OF 2

CLIENT ID NO. : None	AUTHORIZED BY : DAF
SAMPLE MATRIX : Ground Water	CLIENT P.O. : None
SAMPLED BY : NKT/RAK	SAMPLE DATE : 08/05/92
SAMPLE SOURCE : TP-07	SUBMITTAL DATE: 08/05/92
ANALYST : NKT	ANALYSIS DATE : 08/06/92

Organic Monitoring-Drinking Water Volatiles
Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	26.092	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-07

PROJECT NO. : 92-1016
 SAMPLE NO. : 26
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.753	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	2.204	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	21.919	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	1.459	mg/L	0.005
o-Xylene	2.447	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 31
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-08
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/06/92
 SUBMITTAL DATE: 08/06/92
 ANALYSIS DATE : 08/06/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-08

PROJECT NO. : 92-1016
 SAMPLE NO. : 31
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 37
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-09
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/06/92
 SUBMITTAL DATE: 08/06/92
 ANALYSIS DATE : 08/06/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.992	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-09

PROJECT NO. : 92-1016
 SAMPLE NO. : 37
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.173	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	1.269	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	2.128	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.211	mg/L	0.005
o-Xylene	0.090	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 38
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-10
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/06/92
 SUBMITTAL DATE: 08/06/92
 ANALYSIS DATE : 08/06/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	1.928	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-10

PROJECT NO. : 92-1016
 SAMPLE NO. : 38
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	3.618	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	3.214	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	1.854	mg/L	0.005
o-Xylene	1.976	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 70
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-11
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/07/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-11

PROJECT NO. : 92-1016
 SAMPLE NO. : 70
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 55
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-12
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/07/92
 SUBMITTAL DATE: 08/07/92
 ANALYSIS DATE : 08/07/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	1.163	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-12

PROJECT NO. : 92-1016
 SAMPLE NO. : 55
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.062	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	0.636	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	0.565	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.215	mg/L	0.005
o-Xylene	0.050	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 58
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-13
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/07/92
 SUBMITTAL DATE: 08/07/92
 ANALYSIS DATE : 08/07/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-13

PROJECT NO. : 92-1016
 SAMPLE NO. : 58
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	0.069	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.062	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 59
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-14
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/07/92
 SUBMITTAL DATE: 08/07/92
 ANALYSIS DATE : 08/07/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	1.440	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-14

PROJECT NO. : 92-1016
 SAMPLE NO. : 59
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.338	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	0.392	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.930	mg/L	0.005
o-Xylene	0.448	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 60
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-15
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/07/92
 SUBMITTAL DATE: 08/07/92
 ANALYSIS DATE : 08/07/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para) ...	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-15

PROJECT NO. : 92-1016
 SAMPLE NO. : 60
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 71
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-16
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/07/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-16

PROJECT NO. : 92-1016
 SAMPLE NO. : 71
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.057	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 68
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-17
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/08/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-17

PROJECT NO. : 92-1016
 SAMPLE NO. : 68
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.014	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.057	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 69
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-18
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/08/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-18

PROJECT NO. : 92-1016
 SAMPLE NO. : 69
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 72
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-19
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/08/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.646	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-19

PROJECT NO. : 92-1016
 SAMPLE NO. : 72
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.036	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	0.125	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.149	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 73
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-20
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/08/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.124	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
4525 S. Wasatch Blvd.
SLC, Utah 84124

SAMPLE SOURCE: TP-20

PROJECT NO. : 92-1016
SAMPLE NO. : 73
REPORT DATE : 10/09/92
REVIEWED BY : RAK
PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	0.303	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	2.699	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	0.504	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 74
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-21
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/08/92
 SUBMITTAL DATE: 08/08/92
 ANALYSIS DATE : 08/08/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-21

PROJECT NO. : 92-1016
 SAMPLE NO. : 74
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.057	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 83
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-22
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/09/92
 SUBMITTAL DATE: 08/10/92
 ANALYSIS DATE : 08/10/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.056	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-22

PROJECT NO. : 92-1016
 SAMPLE NO. : 83
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.022	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	0.090	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.068	mg/L	0.005
o-Xylene	0.036	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 87
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Soil Gas
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-23
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/10/92
 SUBMITTAL DATE: 08/10/92
 ANALYSIS DATE : 08/10/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-23

PROJECT NO. : 92-1016
 SAMPLE NO. : 87
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 86
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-24
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/10/92
 SUBMITTAL DATE: 08/10/92
 ANALYSIS DATE : 08/10/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-24

PROJECT NO. : 92-1016
 SAMPLE NO. : 86
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 88
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-25
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/10/92
 SUBMITTAL DATE: 08/10/92
 ANALYSIS DATE : 08/10/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-25

PROJECT NO. : 92-1016
 SAMPLE NO. : 88
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 101
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-26
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/11/92
 SUBMITTAL DATE: 08/11/92
 ANALYSIS DATE : 08/11/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-26

PROJECT NO. : 92-1016
 SAMPLE NO. : 101
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 102
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-27
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/11/92
 SUBMITTAL DATE: 08/11/92
 ANALYSIS DATE : 08/11/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-27

PROJECT NO. : 92-1016
 SAMPLE NO. : 102
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 108
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-29
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/11/92
 SUBMITTAL DATE: 08/11/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-29

PROJECT NO. : 92-1016
 SAMPLE NO. : 108
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 109
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-30
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/11/92
 SUBMITTAL DATE: 08/11/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-30

PROJECT NO. : 92-1016
 SAMPLE NO. : 109
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 110
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-31
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/11/92
 SUBMITTAL DATE: 08/11/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-31

PROJECT NO. : 92-1016
 SAMPLE NO. : 110
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 111
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-32
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/12/92
 SUBMITTAL DATE: 08/12/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

PROJECT NO. : 92-1016
 SAMPLE NO. : 111
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

SAMPLE SOURCE: TP-32

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 112
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-33
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/12/92
 SUBMITTAL DATE: 08/12/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-33

PROJECT NO. : 92-1016
 SAMPLE NO. : 112
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 120
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-34
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/12/92
 SUBMITTAL DATE: 08/12/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-34

PROJECT NO. : 92-1016
 SAMPLE NO. : 120
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 131
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-36
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/13/92
 SUBMITTAL DATE: 08/13/92
 ANALYSIS DATE : 08/13/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-36

PROJECT NO. : 92-1016
 SAMPLE NO. : 131
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.052	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 130
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-37
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/13/92
 SUBMITTAL DATE: 08/13/92
 ANALYSIS DATE : 08/13/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.789	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
4525 S. Wasatch Blvd.
SLC, Utah 84124

SAMPLE SOURCE: TP-37

PROJECT NO. : 92-1016
SAMPLE NO. : 130
REPORT DATE : 10/09/92
REVIEWED BY : RAK
PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	2.525	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	0.930	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	2.410	mg/L	0.005
o-Xylene	1.769	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 141
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-38
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/14/92
 SUBMITTAL DATE: 08/14/92
 ANALYSIS DATE : 08/14/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
4525 S. Wasatch Blvd.
SLC, Utah 84124

SAMPLE SOURCE: TP-38

PROJECT NO. : 92-1016
SAMPLE NO. : 141
REPORT DATE : 10/09/92
REVIEWED BY : RAK
PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 142
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : TP-39
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/14/92
 SUBMITTAL DATE: 08/14/92
 ANALYSIS DATE : 08/14/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TP-39

PROJECT NO. : 92-1016
 SAMPLE NO. : 142
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery 4525 S. Wasatch Blvd. SLC, Utah 84124 Attn: David A. Fulton	PROJECT NO. : 92-1016 SAMPLE NO. : 122 REPORT DATE : 10/09/92 REVIEWED BY : RAK PAGE : 1 OF 2
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CLIENT ID NO. : None SAMPLE MATRIX : Ground Water SAMPLED BY : JMM Personnel SAMPLE SOURCE : TWP-01 ANALYST : NKT	AUTHORIZED BY : DAF CLIENT P.O. : None SAMPLE DATE : 08/12/92 SUBMITTAL DATE: 08/12/92 ANALYSIS DATE : 08/12/92
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Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.520	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: TWP-01

PROJECT NO. : 92-1016
 SAMPLE NO. : 122
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.085	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	0.795	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	1.271	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.141	mg/L	0.005
o-Xylene	0.032	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery 4525 S. Wasatch Blvd. SLC, Utah 84124 Attn: David A. Fulton	PROJECT NO. : 92-1016 SAMPLE NO. : 16 REPORT DATE : 10/09/92 REVIEWED BY : RAK PAGE : 1 OF 2
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CLIENT ID NO. : None SAMPLE MATRIX : Soil Gas SAMPLED BY : NKT/RAK SAMPLE SOURCE : SGS-01 ANALYST : NKT	AUTHORIZED BY : DAF CLIENT P.O. : None SAMPLE DATE : 08/05/92 SUBMITTAL DATE: 08/05/92 ANALYSIS DATE : 08/05/92
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Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.161	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: SGS-01

PROJECT NO. : 92-1016
 SAMPLE NO. : 16
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.046	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	12.645	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	0.295	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 143
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : NKT/RAK
 SAMPLE SOURCE : GWS-01
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/14/92
 SUBMITTAL DATE: 08/14/92
 ANALYSIS DATE : 08/14/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	0.195	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: GWS-01

PROJECT NO. : 92-1016
 SAMPLE NO. : 143
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.072	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	0.946	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	0.062	mg/L	0.005
o-Xylene	0.027	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery 4525 S. Wasatch Blvd. SLC, Utah 84124 Attn: David A. Fulton	PROJECT NO. : 92-1016 SAMPLE NO. : 154 REPORT DATE : 10/09/92 REVIEWED BY : RAK PAGE : 1 OF 2
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CLIENT ID NO. : None SAMPLE MATRIX : Ground Water SAMPLED BY : NKT/RAK SAMPLE SOURCE : GWS-02 ANALYST : NKT	AUTHORIZED BY : DAF CLIENT P.O. : None SAMPLE DATE : 08/14/92 SUBMITTAL DATE: 08/14/92 ANALYSIS DATE : 08/14/92
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Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: GWS-02

PROJECT NO. : 92-1016
 SAMPLE NO. : 154
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 123
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Product (JP-4)
 SAMPLED BY : Unknown
 SAMPLE SOURCE : Unknown
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : Unknown
 SUBMITTAL DATE: 08/12/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	12.782	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

PROJECT NO. : 92-1016
 SAMPLE NO. : 123
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

SAMPLE SOURCE: Unknown

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	0.475	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	1.804	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	7.434	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	2.009	mg/L	0.005
o-Xylene	1.647	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

Attn: David A. Fulton

PROJECT NO. : 92-1016
 SAMPLE NO. : 107
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 1 OF 2

CLIENT ID NO. : None
 SAMPLE MATRIX : Ground Water
 SAMPLED BY : JMM Personnel
 SAMPLE SOURCE : MW-03
 ANALYST : NKT

AUTHORIZED BY : DAF
 CLIENT P.O. : None
 SAMPLE DATE : 08/06/92
 SUBMITTAL DATE: 08/12/92
 ANALYSIS DATE : 08/12/92

Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	12.179	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: MW-03

PROJECT NO. : 92-1016
 SAMPLE NO. : 107
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	2.722	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	6.728	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	4.300	mg/L	0.005
o-Xylene	3.369	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery 4525 S. Wasatch Blvd. SLC, Utah 84124 Attn: David A. Fulton	PROJECT NO. : 92-1016 SAMPLE NO. : 89 REPORT DATE : 10/09/92 REVIEWED BY : RAK PAGE : 1 OF 2
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CLIENT ID NO. : None SAMPLE MATRIX : Ground Water SAMPLED BY : JMM Personnel SAMPLE SOURCE : MW-07 ANALYST : NKT	AUTHORIZED BY : DAF CLIENT P.O. : None SAMPLE DATE : 08/10/92 SUBMITTAL DATE: 08/10/92 ANALYSIS DATE : 08/10/92
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Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery
 4525 S. Wasatch Blvd.
 SLC, Utah 84124

SAMPLE SOURCE: MW-07

PROJECT NO. : 92-1016
 SAMPLE NO. : 89
 REPORT DATE : 10/09/92
 REVIEWED BY : RAK
 PAGE : 2 OF 2

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isopropylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery 4525 S. Wasatch Blvd. SLC, Utah 84124 Attn: David A. Fulton	PROJECT NO. : 92-1016 SAMPLE NO. : 75 REPORT DATE : 10/09/92 REVIEWED BY : RAK PAGE : 1 OF 2
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CLIENT ID NO. : None SAMPLE MATRIX : Ambient Air SAMPLED BY : RAK SAMPLE SOURCE : Basement Sample ANALYST : NKT	AUTHORIZED BY : DAF CLIENT P.O. : None SAMPLE DATE : 08/08/92 SUBMITTAL DATE: 08/08/92 ANALYSIS DATE : 08/08/92
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Organic Monitoring-Drinking Water Volatiles
 Full Suite

Sample Analysis			
Parameter	Result	Unit	Detection Level
Benzene	< 0.005	mg/L	0.005
Bromobenzene	N/A	mg/L	0.005
Bromochloromethane	N/A	mg/L	0.005
Bromodichloromethane	N/A	mg/L	0.005
Bromoform	N/A	mg/L	0.005
Bromomethane	N/A	mg/L	0.005
n-Butylbenzene	N/A	mg/L	0.005
sec-Butylbenzene	N/A	mg/L	0.005
tert-Butylbenzene	N/A	mg/L	0.005
Carbon tetrachloride	N/A	mg/L	0.005
Chlorobenzene	N/A	mg/L	0.005
Chloroethane	N/A	mg/L	0.005
Chloroform	N/A	mg/L	0.005
Chloromethane	N/A	mg/L	0.005
2-Chlorotoluene (ortho) ...	N/A	mg/L	0.005
4-Chlorotoluene (para)	N/A	mg/L	0.005
1,2-Dibromoethane (EDB) ...	N/A	mg/L	0.005
1,2-Dibromo-3-chloropropane	N/A	mg/L	0.005
Dibromochloromethane	N/A	mg/L	0.005
Dibromomethane	N/A	mg/L	0.005
1,2-Dichlorobenzene (ortho)	N/A	mg/L	0.005
1,3-Dichlorobenzene (meta)	N/A	mg/L	0.005
1,4-Dichlorobenzene (para)	N/A	mg/L	0.005
Dichlorodifluoromethane ...	N/A	mg/L	0.005
1,1-Dichloroethane	N/A	mg/L	0.005
1,2-Dichloroethane	N/A	mg/L	0.005

TERRA TECHNOLOGIES - SOUTHWEST, INC.
ANALYTICAL TESTING SERVICES

CLIENT: James M. Montgomery 4525 S. Wasatch Blvd. SLC, Utah 84124	PROJECT NO. : 92-1016 SAMPLE NO. : 75 REPORT DATE : 10/09/92 REVIEWED BY : RAK PAGE : 2 OF 2
SAMPLE SOURCE: Basement Sample	

Sample Analysis			
Parameter	Result	Unit	Detection Level
cis 1,2-Dichloroethene	N/A	mg/L	0.005
trans 1,2-Dichloroethene ..	N/A	mg/L	0.005
1,2-Dichloropropane	N/A	mg/L	0.005
1,3-Dichloropropane	N/A	mg/L	0.005
2,2-Dichloropropane	N/A	mg/L	0.005
1,1-Dichloropropene	N/A	mg/L	0.005
1,1-Dichloroethene	N/A	mg/L	0.005
cis 1,3-Dichloropropene ...	N/A	mg/L	0.005
trans 1,3-Dichloropropene .	N/A	mg/L	0.005
Ethylbenzene	< 0.005	mg/L	0.005
Hexachlorobutadiene	N/A	mg/L	0.005
Isoproylbenzene	N/A	mg/L	0.005
4-Isopropyltoluene	N/A	mg/L	0.005
Dichloromethane	N/A	mg/L	0.005
Napthalene	N/A	mg/L	0.005
Propylbenzene	N/A	mg/L	0.005
Styrene	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethane .	N/A	mg/L	0.005
1,1,2,2-Tetrachloroethene			
(Tetrachloroethylene)	< 0.005	mg/L	0.005
1,1,1,2-Tetrachloroethane .	N/A	mg/L	0.005
Toluene	< 0.005	mg/L	0.005
1,2,3-Trichlorobenzene	N/A	mg/L	0.005
1,2,4-Trichlorobenzene	N/A	mg/L	0.005
1,1,1-Trichloroethane	N/A	mg/L	0.005
1,1,2-Trichloroethane	N/A	mg/L	0.005
Trichloroethene (TCE)	N/A	mg/L	0.005
Fluorotrichloromethane	N/A	mg/L	0.005
1,2,3-Trichloropropane	N/A	mg/L	0.005
1,2,4-Trimethylbenzene	N/A	mg/L	0.005
1,3,5-Trimethylbenzene	N/A	mg/L	0.005
Vinyl chloride	N/A	mg/L	0.005
p-m-Xylene	< 0.005	mg/L	0.005
o-Xylene	< 0.005	mg/L	0.005